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RAILWAY AND COMMERCIAL GAZETTE.

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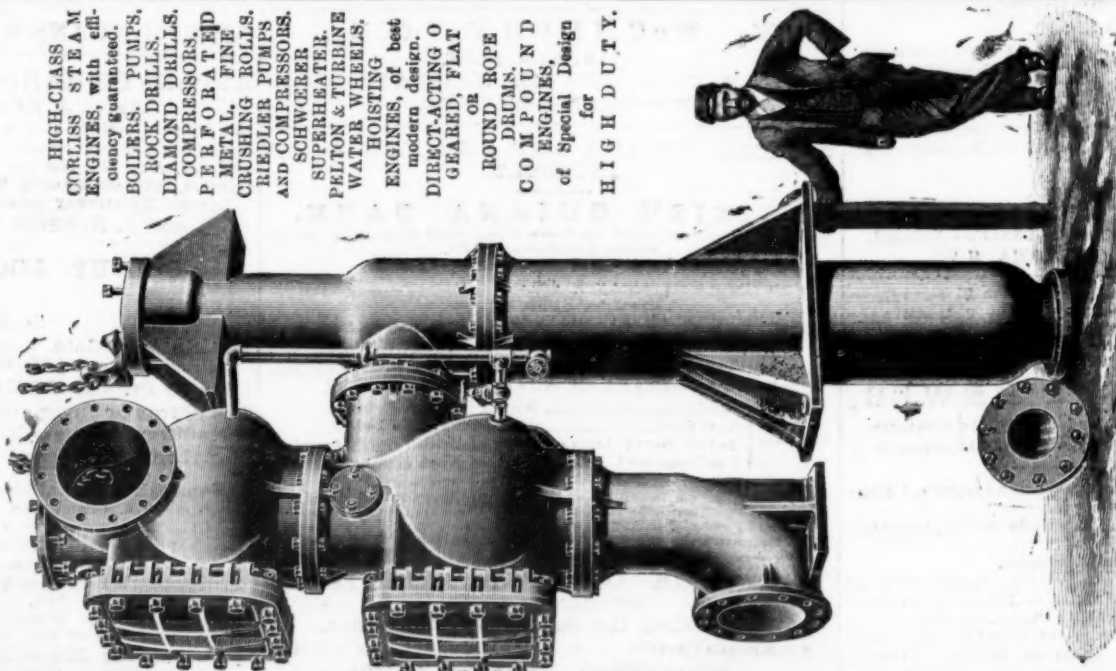
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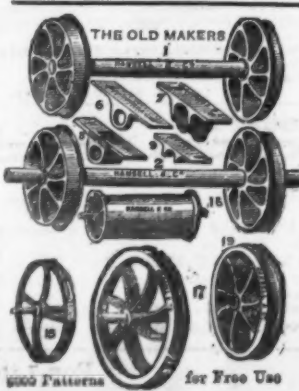
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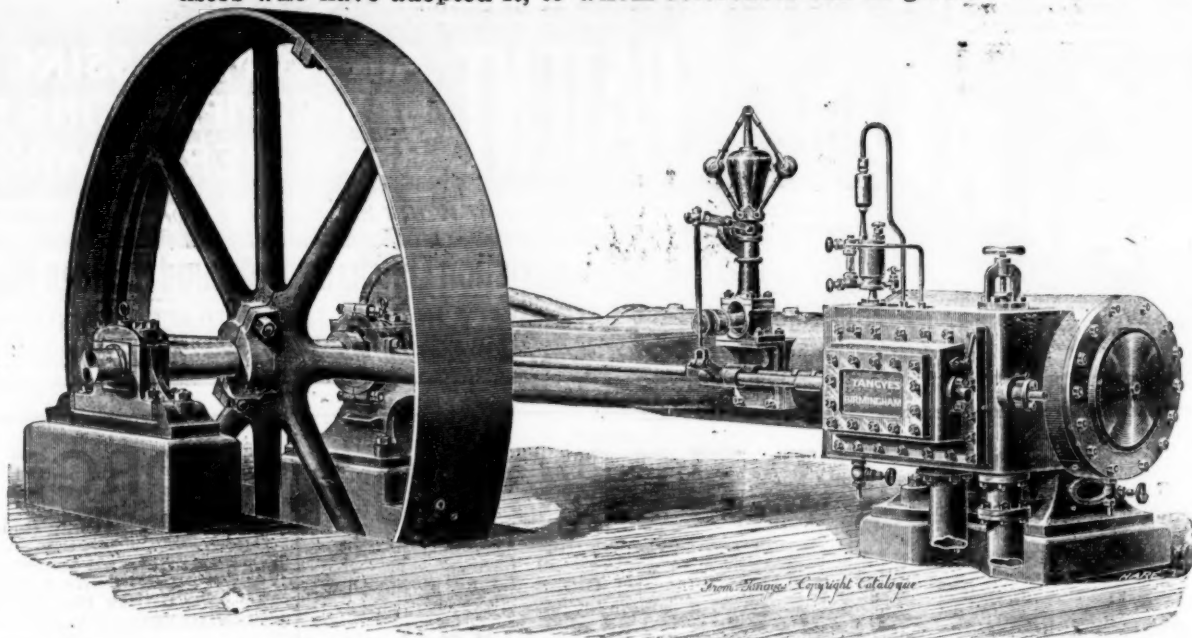
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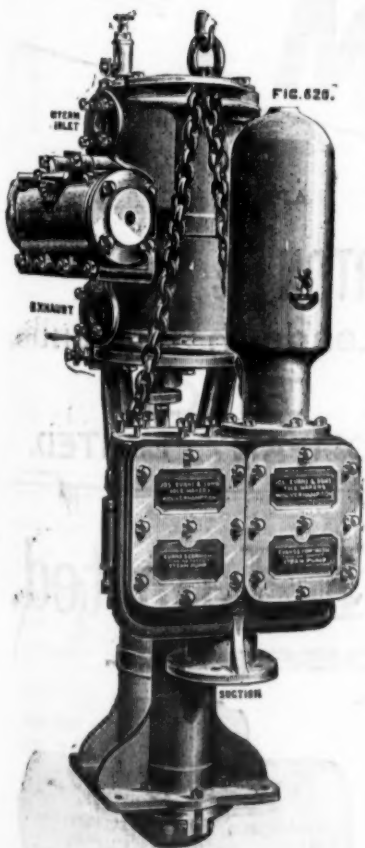
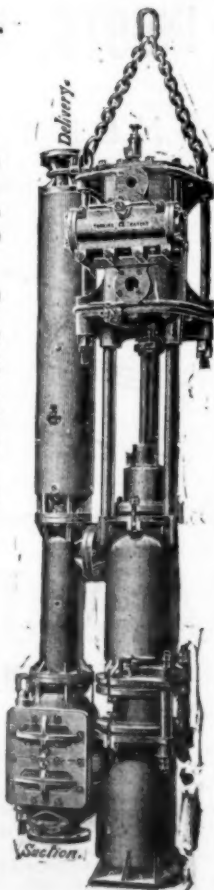


FIG. 875, "FLUOMETER" PATENT STEAM VACUUM PUMP.

"STRAIGHT-LINE" PATTERN SINKING PUMP

CULWELL WORKS, WOLVERHAMPTON.

WALKERS' PATENT INDESTRUCTIBLE VENTILATING FANS FOR MINES, TUNNELS, &c.
 CONSTRUCTORS OF THE VENTILATING MACHINERY AT THE SEVERN AND MERSEY TUNNELS.

PATENT ANTI-VIBRATION SHUTTER
 Applicable to all enclosed fans

BROTHERS

Engineers, Pagefield Ironworks, WIGAN.

WALKER PATENT AIR COMPRESSING ENGINES
 GAS COMPRESSING ENGINES
 BESSEMER BLOWING ENGINES

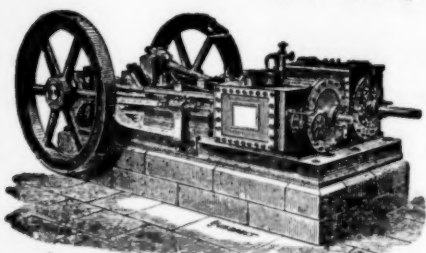
upwards of 400 of the above now AT WORK indicating in the aggregate 150,000 Horse Power

Fisher & Walkers' Patent Friction Clutch & Underground Haulage Machinery
 THIS GEARING IS NOW EXTENSIVELY IN USE FOR HAULAGE PURPOSES. *
 The objects attained are SIMPLICITY, ENDURANCE OF THE MACHINERY AND ROPES with a MINIMUM EXPENDITURE OF POWER.

AIR COMPRESSORS

With Compound Air and Steam Cylinders,

Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.



SCHRAM'S IMPROVED Rock Boring Machines.

Supplied to the Indian, Colonial, and other Governments.

2500 IN USE in all PARTS of the WORLD.

DIAMOND PROSPECTING DRILLS.

"OPTIMUS" COMPOUND ROCK DRILL.

(P. J. OGLES PATENT.)

Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

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TELEGRAMS "SCHRAM LONDON," A1. A.B.C. and The Engineering Telegraph Codes Used.

GEORGE GREEN, FOUNDRY, ABERYSTWYTH.

SILVER MEDALS AWARDED AT THE ROYAL CORNWALL POLYTECHNIC, 1872 & 1876; GOLD MEDAL AWARDED AT THE GREAT INTERNATIONAL MINING EXHIBITION, CRYSTAL PALACE, 1890.

ONLY AWARDS GIVEN FOR CONCENTRATION PLANTS.

GREEN'S LATEST IMPROVED Self-Acting or Automatic Ore Dressing Machinery.

A Special Plant, on a reduced scale, has been erected at the Works by which samples of METALLIC ORES up to Five Tons may be treated, and the commercial value determined. In this way the most suitable arrangement of Plant is ascertained, a considerable advantage to intending Purchasers of Crushing and Concentrating Plant.

GOLD STAMP AND OTHER MILLS.
 Estimates, Catalogues, and Full Particulars on Application.

Telegrams—Green, Foundry, Aberystwyth.

For PURE ALUMINIUM

98 to 99½ per cent. (98 per cent. minimum guaranteed) in

INGOTS, STICKS, & ROLLING SLABS;

ALSO FOR

SHEETS, &c., AND FERRO-ALUMINIUM.

ALUMINIUM.

APPLY TO

HENRY R. MERTON & CO.,

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LONDON, E.C.

AGENTS FOR THE BRITISH ALUMINIUM COMPANY, LIMITED.

A. & J. STEWART and CLYDESDALE, Limited.

Glasgow, Coatbridge, and Mossend.

WROUGHT IRON WELDED TUBES and FITTINGS for GAS, WATER, and STEAM.

Light Lap-welded Wrought-iron and Steel Tubes

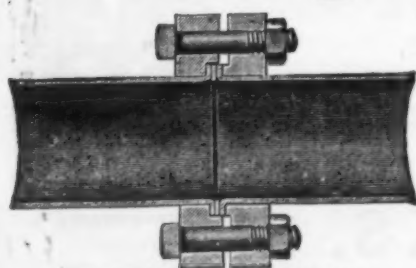
(SPECIALLY ADAPTED FOR MINES).

With Patent Flanged Joints (as illustrated) for the Conveyance of Water, Steam, and Air, at High and Low Pressures.

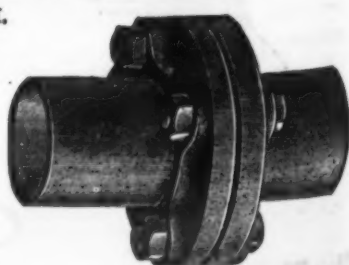
LAP-WELDED IRON AND STEEL BOILER TUBES

FOR LOCOMOTIVE, MARINE, AND OTHER MULTITUBULAR BOILERS.

STEEL & IRON PLATES FOR BOILERS, BRIDGES, &c.



SECTION OF PATENT FLANGED JOINT



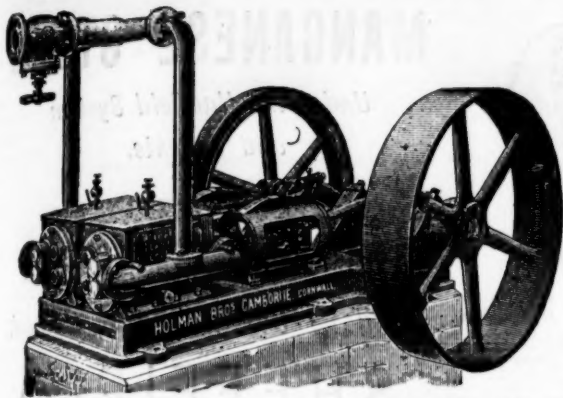
PLAN OF PATENT FLANGED JOINT.

Head Offices **41, OSWALD STREET, GLASGOW.**

HOLMAN Bros., Camborne, Cornwall.

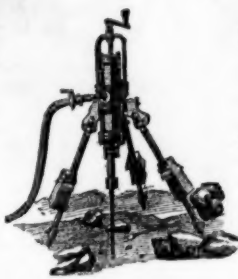
ESTABLISHED 1839.

Patentees and Sole Makers of
"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.



FIRST
SILVER MEDAL,
Highest Award,
Mining Institute
Contest, 1881.

Three Makers
represented.



FIRST
SILVER MEDAL
Highest Award,
Royal Cornwall
Polytechnic
Jubilee Exhibition
Contest, 1882.

Five Makers
represented.

AWARDED SILVER MEDAL INTERNATIONAL
INVENTIONS EXHIBITION, 1885.

RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour.

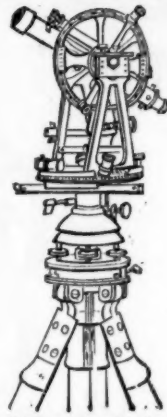
At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET** PERPENDICULAR RISE **46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

Estimates for **ROCK BORING PLANT** and **GENERAL MINING MACHINERY** on Application.

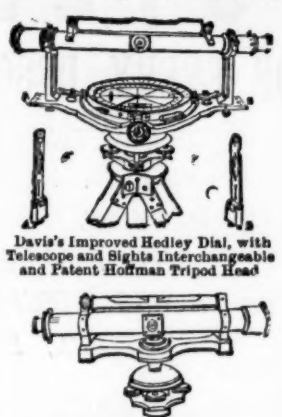
London Offices: 7 and 9, LEADENHALL BUILDINGS, E.C.

JOHN DAVIS AND SON.

ALL SAINTS WORKS, DERBY;
118, NEWGATE STREET, LONDON.



Transit Theodolite with Patent
Hoffman Tripod Head, and
Trough Compass.



Dumpy Level with
Hoffman Patent Tripod Head.

**MINING, SURVEYING, AND
ENGINEERING INSTRUMENTS.**
THEODOLITES. LEVELS. TACHEOMETERS.

Davis's Improved Hedley Miners' Dials, with
HOFFMAN PATENT TRIPOD HEAD;
AND ALL DESCRIPTIONS OF MATHEMATICAL AND
MINING SURVEYING INSTRUMENTS.

Revised Illustrated Catalogues Free to any Part the World.

SECTION (A) MATHEMATICAL DEPARTMENT AND SAFETY LAMPS
SECTION (B) ELECTRICAL DEPARTMENT.

Gold Medal Awarded Mining Exhibition, 1890.
A. B. C. CABLE CODE, 4TH EDITION.

Jeffrey Electric Coal Sutter and Drill may be seen at work in the
Model Mine, Cardiff Exhibition, Instruments, &c., Stand No. 315.

AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

CONCENTRATION.

The Clarkson-Stanfield Ore Reduction Co. (Limited).

In the CLARKSON-STANFIELD process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

OUTPUT $\frac{1}{2}$ TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.

CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS,

6, COLONIAL AVENUE, MINORIES, LONDON, E.

The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

N.B.—The owners of the Carndochan Mine, near Bala, North Wales, will, by arrangement, show their CLARKSON-STANFIELD plant working on a Refractory Low Grade Gold Ore.

NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 10712 Alfred George Melhuish, 228, Choumert Road, Peckham, London.—Improvements in and connected with internal combustion engines.—September 14.
- 10777 Samuel Pickard, 104, Colmore Row, Birmingham.—Certain improvements in connection with steam boilers and other furnaces for preventing the smoke arising from same.—September 14.
- 10304 Thomas Henry Mow, 21, Coleman Street, London.—Improvements in and connected with engines and other pistons.—September 14.
- 10111 Samuel Henry Holmes and Harry Hewitt Griffin, 111, Hatton Garden, London.—Improvements in or relating to hot-air engines.—September 14.
- 10193 Gaston Michel Schmidt, Eugene Jules Henri Lesne, and Alfred Dolland, 45, Southampton Buildings, Chancery Lane, London.—An improved rotary engine. (Date applied for under Patents, &c., Act, 1883, Section 103, June 19, 1896, being date of application in France).—September 15.
- 10410 William Lawrence Mitchell, Junior, Abbotshill Foundry, Kirkcaldy.—A new and improved method of and means for admitting steam into steam drying cylinders, and discharging the water condensed or otherwise out of those cylinders.—September 16.
- 10110 John Kidd, 23, Coleman Street, London.—Improvements in connection with blast furnaces and the like.—September 16.
- 10492 Robert William Ward, 3, Quality Court, Chancery Lane, London.—A new or improved steam or boiler.—September 17.
- 10483 James Seedhouse and James Seedhouse, jun., 43, Sheaf Street Park, Sheffield.—Improvements in smoke burning apparatus and steam generator.—September 17.
- 10601 James Albert Deuther, 77, Chancery Lane, London.—Improvements in and relating to electric furnaces.—September 17.
- 10775 Max Siefeldt, 24, Southampton Buildings, Chancery Lane, London.—Blowing cartridge.—September 18.
- 10740 Joseph Hardhill, Penny Bank Chambers, Halifax.—Improvements in steam engines.—September 19.
- 10714 Charles Scott and Henry Hodgson, 4, St. Ann's Square, Manchester.—Improvements in apparatus for actuating "Corliss" and other spring closed valve gear for steam engines.—September 19.
- 10026 Charles Bilton, 36, Buchanan Street, Glasgow.—Improved lubricating composition for machinery bearings and the like.—September 19.
- 10000 Jess Weinstein, 47, Lincoln's Inn Fields, London.—Improvements in rotary grinding or crushing mills.—September 19.
- 10011 Leslie Stephen Grandall, 18, Southampton Buildings, Chancery Lane, London.—Improvements relating to the conversion of reciprocating motion into continuous and uniform rotary motion.—September 19.

SPECIFICATIONS PUBLISHED.

- 10104 Watson.—Furnace for the destruction of town refuse.
- 10103 Trippett.—Cams for quartz crushing machines and the like.
- 9989 Magill.—Self-adjusting metal packing ring for engine cylinders and like purposes.
- 10100 Bismell.—Brake for hoisting apparatus.
- 10107 Hey (Hollmann).—Oil and gas engines.
- 10070 Wilcox (The Action-Gesellschaft Dynamit Nobel).—Explosive or blasting composition.
- 10011 Sherr, Butler, and Weiss.—Process and means for converting pig iron into malleable iron or steel.

The above specifications published may be had of Messrs. Rayner and Co., 33, Chancery Lane, London, at 10s. each, including postage.

JOINT-STOCK COMPANIES.

NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

- Cripple Creek Bonanza Gold Mines (Limited).—Registered September 18 by Alexander Ross, 53, London Wall, E.C., with a capital of £120,000 in £1 shares, to acquire any mines, mining, water and other rights, farms, lands, estates, &c., in Colorado, and to deal with, develop, and turn to account the same in such manner as the company shall see fit, and further to acquire any mines, mining, water and other rights, grants, leases, claims, concessions, &c., of purchase, metalliferous, land, &c. Registered office, Bevois House, Basinghall Street, E.C.
- Baldwood Proved Gold Mines (Limited).—Registered September 20 by Foster, Gray, and Co., 15, Finsbury Circus, E.C., with a capital of £125,000 in £1 shares, to adopt and carry into effect an agreement made September 19 between the Contract Agency of the one part, and L. Curtis, as trustee for and on behalf of this company, of the other part; to acquire by purchase, grant, concession, lease, licence, or otherwise any lands or hereditaments or rights or interests in lands or hereditaments, convenient for the purposes of the company, and any mines and mineral deposits in New South Wales, and to develop, deal with, work and turn to account the same.
- Lucia Silver Mines (Limited).—Registered by T. T. Hull, 22, Chancery Lane, W.C., with a capital of £130,000, in £1 shares, to adopt and carry into effect an agreement expressed to be made between the Lucia Syndicate (Limited) of the first part, and this company of the other part; to acquire mines, mining rights, &c., in Colombia or elsewhere, and to develop, work, deal with and generally turn to account the same, and further to prospect and explore, develop and work lands, mines, minerals, ores, mining rights and claims in any part of the world, and to develop the resources of such lands, &c.
- Hannan's Block 45 (Limited).—Registered September 17 by Burn and Beridge, 11, Old Broad Street, E.C., with a capital of £230,000, in £1 shares, to deal with such property as the company shall see fit; and further to prospect, explore, develop, and work lands, mines, minerals, ores, mining rights, and claims in any part of the world, and to develop the resources of such lands, &c. Registered office, 71, Bishopsgate Street, E.C.
- Hannan's Water and Ore Reduction Company (Limited).—Registered September 17 by Ashurst, Morris, Crisp, and Co., 17, Throgmorton Avenue, E.C., with a capital of £150,000, in £1 shares. To acquire mines, mining rights, &c., in Australia, and to develop, work, deal with, and turn to account the same in such manner as the company shall see fit; and further to prospect, explore, develop, and work lands, mines, minerals, ores, mining rights, and claims in any part of the world.
- New Balkis Eersteling (Limited).—Registered September 17 by Dale, Newman, and Hood, 75, Cornhill, E.C., with a capital of £260,000, divided into 520,000 shares of 5s. each. To adopt and carry into effect an agreement between the Balkis Eersteling (Limited), in liquidation, and the liquidator thereof of the first part and this company of the other part, for the acquisition as a going concern of the undertaking, assets, and liabilities, &c., of the said Balkis Eersteling (Limited), and to deal with the same in such manner as the company shall see fit; and further to prospect, explore, develop, and work lands, mines, minerals, ores, mining rights, and claims in any part of the world.
- Caratal New Mines (Limited).—Registered September 17 by Trinder and Capron, 47, Cornhill, with a capital of £175,000, in 1,400,000 shares of 1s. 6d. each. Objects: To adopt and carry into effect an agreement expressed to be made between the Caratal Mining Company (Limited), of the first part, and this company of the other part, for the acquisition of the business and undertaking of the said Caratal Mining Company (Limited); to acquire mines, mining rights, &c., in Venezuela, and to develop and work the same; and further to prospect, explore, develop and work lands, mines, minerals, ores, mining rights and claims in any part of the world, and to develop the resources of such lands, &c., as may from time to time be acquired by the company. Registered office, 57, Moorgate Street, E.C.
- Continental and Eastern Syndicate (Limited).—Registered September 17. Capital £15,000, in £1 shares. Objects: To enter into an agreement with A. Frommer, and to acquire and turn to account any mines, mining rights, &c., in any part of the world.

CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

* * We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

Borehole, October 5 (East Retford).—For sinking a borehole to a depth of about 350 feet, 12 inch diameter, at the East Retford Corporation Waterworks. Specification and particulars may be had from Mr. J. B. Fenwick, Gas and Water Officer. Tenders to be sent to Mr. Fenwick, endorsed "Tender for Borehole," by October 5.

Pumps, October 5 (London, E.C.).—For the supply of duplex pumps with 8 in. cylinders, for the Bengal and North-Western Railway Company (Limited). Specification, form of tender, and general conditions of contract may be obtained on payment of 10s. (no part of which will in any case be returned) by application at the company's office. Tenders are to be delivered in sealed envelopes by noon on October 5, and marked on outside "Tender for Duplex Pumps with Boiler." Mr. E. L. Marryat, secretary, 237, Gresham House, Old Broad Street, London, E.C.

Rails, October 6-13 (India Office, S.W.).—The Secretary of State for India in Council is prepared to receive tenders to supply (1) steel rails (2) steel fish plates (3) crossings and switches (4) wheels and axles for wagons (5) accident cranes, and (6) carriages, &c. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W., and tenders are to be delivered at that office by 2 p.m. on October 6 for Nos. 1 to 5, and on October 13 for No. 6.

Coal, October 7 (Camberley).—For the supply and delivery in such quantities as may be required at the various public buildings in the city and to the irrigation works for ensuing 10 months from October 1 of the following:—Best sea-borne coal for public buildings at per ton, steam coal, fine coal, and coke at per chaldron of 36 bushels for the Town Council. Tenders to be sent to Mr. Henry Fielding, town clerk.

Coal, October 7 (Holland).—For the supply of coal for four steam engines in connection with the Zuid-Willms Canal. Application to the Provincial Administration, Assen.

Pier, October 12 (Marsala).—For lengthening the western breakwater of the harbour at Marsala, Sicily (about £10,510). Particulars at the Italian Ministry of Public Works at Rome, or at the Prefecture at Trapani, Sicily.

Pipe Connecting, October 12 (Baltimore, Ireland).—For connecting the water pipes on the road with the waterworks of the Baltimore District Asylum, according to specification to be seen at the office of the asylum, for the governors. Tenders by October 12. Mr. James Young, clerk.

Railway Stores, October 17 (Lisbon).—For the supply to the Royal Portuguese Railway Company of (1) sheet and other iron, and (2) ticket punches and ticket numbering and issuing stampers. Tenders to the Chief of the Stores Department at Santa Apollonia Station, Lisbon; and particulars also obtainable at Paris, Rue de Châteaudun, 28.

Foundry Coke, October 25 (Alexandria).—For the supply of 800,000 kilos (less than 500 tons) of foundry coke to the Administration of Railways, Telegraphs, and Port of Alexandria. Delivery in four lots, in January, April, July, and October next. Tenders on stamped paper (£3) and a 10 per cent. deposit as security. Application to M. le Président du Conseil d'Administration, Cairo.

Pumps, November 9 (Heyst-sur-Mer, Belgium).—For the supply and erection of machinery and pumps for the waterworks and sewers. Particulars for 2 hrs. (1s. 7d.) from l'Administration Communale, Heyst-sur-Mer, Belgium.

Canal (Limerick).—For the supply of canal for the 12 months for the Gas Committee of Limerick. Particulars to be had from the manager, 31, William Street, Limerick.

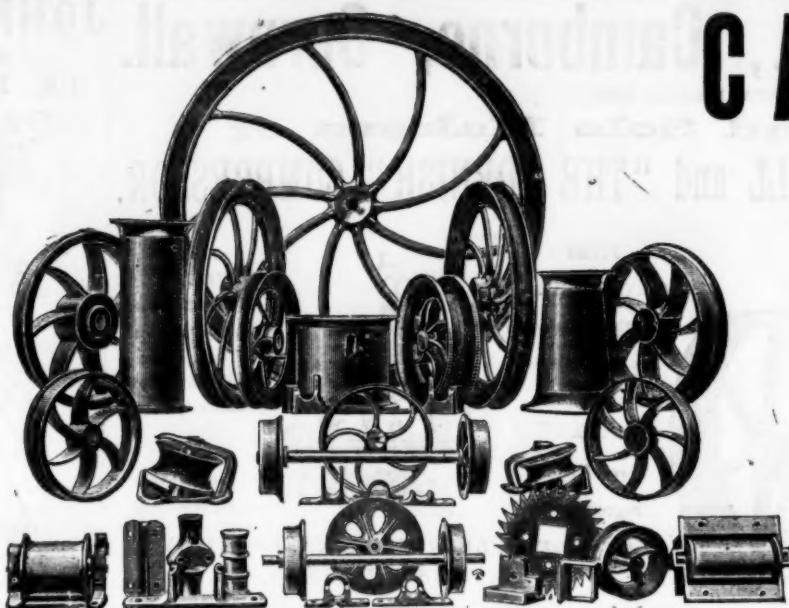
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MINING REQUISITES,
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CASTINGS

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MANGANESE STEEL

Under the Hadfield System
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TUB WHEELS AND AXLES

Fitted by Hadfield's Fast Method.

SHEFFIELD.

VEIN WALLS.*

By T. A. RICKARD, Denver, Colorado.

FROM time immemorial the fissure vein has been held the simplest type of ore deposit. The prominence given to it by Cotin and his disciples, from their study of the mines of the Erzgebirge, is impressed upon technical literature; and in consequence the ores which carry the valuable metals have been supposed to occur mainly in fissures, cleaving the rocks in diverse directions, and the noblest type of vein has been deemed that which cut across the country independent of its structure, whether evidenced as bedding, foliation or cleavage, and which was identified with rents produced in the rocky crust of the earth.

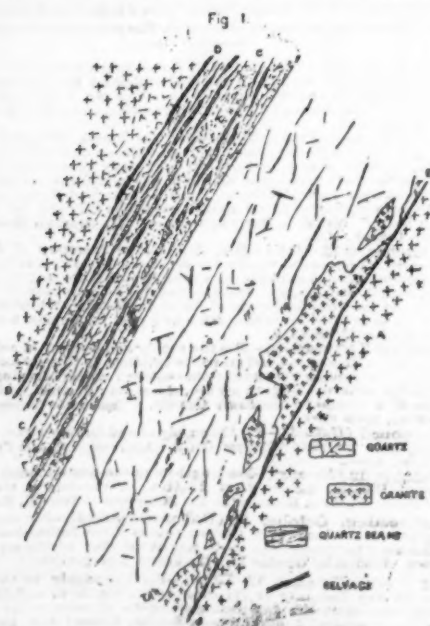
As so conceived, the vein was a fissure filled with ore extending through the country for a varying distance, and continued downwards to a depth more or less proportionate to its longitudinal extent. The vein material was bounded by an encasement of rock, and those immediate surfaces which limited it on either side were called "walls."

These primary conceptions have become modified by the experience of modern mining in widely separated regions. The study of lode formations has led to the recognition of notable departures from the supposed normal structure of the veins of Saxony and Cornwall, the two classic homes of early economic geology.

Typically the walls of a vein are conceived as parallel rock planes enclosing the ore; the upper one being called the "hanging," and the lower the "footwall."

Walls are rarely alike. Even where a vein traverses a homogeneous formation, such as a massive crystalline rock, it is usually found that the surface which bounds it underneath differs from that which limits it overhead. This is to be ascribed to the effect of the agencies which brought about the deposition of the ore. The action of underground waters tends at first to affect both equally, but in many cases probably the solutions as they slowly ascend along the line of fissuring are prevented from penetrating into the enclosing rock by the occurrence of an impermeable covering of clay due to abrasion, which may line either wall, but because of gravity generally accompanies the under one. Similarly we are justified in supposing that the deposition of a mineral deposit may form a coating which would serve to protect the footwall from the corroding effects of chemical action. The activity of the mineral-bearing current thus becomes diverted in its greatest intensity towards the upper wall, where the decomposition of the rock surface may be followed by its disintegration so as to cause the exposure of fresh faces for further dissolution.

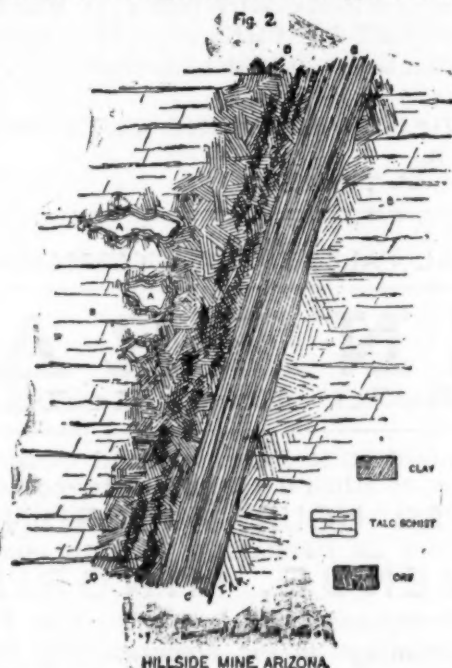
Illustrations of these conditions may be seen in Figs. 1 and 2. The first is reproduced from a sketch made June 25, 1895, in the lower level of the Union and Companion Mine at Cornucopia, Union County, Oregon. It represents the breast of the north drift on the west vein. The country, a fine-grained granite, is not visibly altered under the footwall; but along the hanging it exhibits an alteration of its more soluble ingredients. There is a slight selvage, D, separating the granite from the pay ore, C, which is about 10 inches thick, and consists of ribbons of quartz, impreg-



UNION AND COMPANION MINE, OREGON.

nated with pyrite and alternating with strips of altered country. A distinct parting, unaccompanied by any apparent selvage, divides this streak of ore from one, B, below it, which is twice as thick, but much less gold bearing. This part, B, of the vein consists of white quartz, carrying occasional patches of pyrite, and marked by large

inclusions of slightly altered country, arranged along the footwall, where a thin selvage separates them from the outer granite. The evidence of vein structure embodied in this figure permits diverse interpretations. The upper pay streak, C, appears to me to be



HILLSIDE MINE, ARIZONA.

country rock, in place, decomposed, fractured, and silicified, with accompanying precipitation of gold. The central wall may have been the original hanging wall. The present footwall is sufficiently distinct; but the occurrence of the pieces of enclosed country leads me to believe that at an earlier stage the footwall was broken and irregular; the shape and position of the fragments of rock now lying upon it being such as to render it doubtful that they could have been detached from the hanging.

Fig. 2* was drawn May 10, 1893, in the No. 4 level north of the Hillside Mine, Yavapai County, Arizona. The lode occupies a strong fissure, cutting almost vertically through the nearly horizontal layers of a quartzose talc schist, B B. The original line of fracturing is probably now occupied by the seam, C, 6 inches thick, of white talcose clay, covering the footwall. The ore-bearing portion, D, of the lode is formed by an irregular mineralization of the hanging-wall country, extending to a distance of from 15 to 18 inches, and presents an intricate medley of quartz, pyrite, zinc blende, and a little galena, carrying about 1 ounce of gold, and 25 ounces of silver per ton.

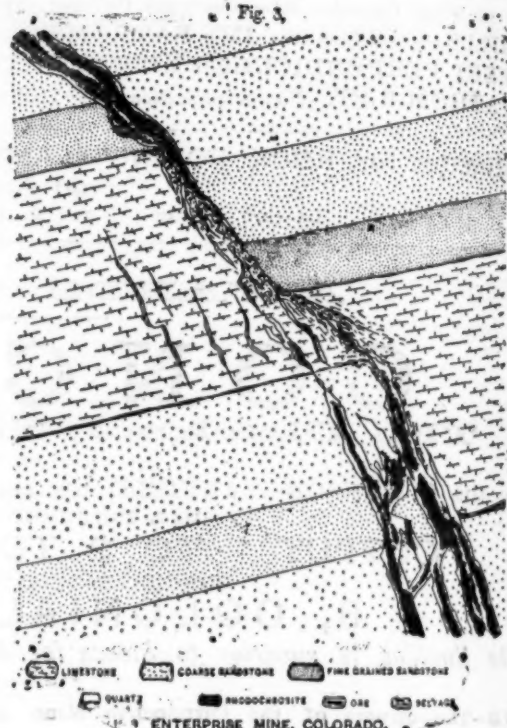
The most noteworthy feature of the section is the occurrence in the hanging, on the outer confines of the main ore streak of several irregular cavities, A A, whose inner surface is covered by a series of siliceous coatings, evidently deposited by mineralizing waters that have circulated through them. Along the outcrop of the lode at Wikip Point, there occurs hollows in the schist, of a character similar to those above described, and of such a shape as to suggest that their origin was due to the removal by waters carrying carbonic acid of certain proportions of the country rendered soluble by the segregation of lime. As the fourth level nearly follows the water level of the mine, and the siliceous incrustations were stained with iron oxide, the formation appears to have been due to what Posepny called the Vadose circulation. On the other hand, the impregnation of the hanging wall country by sulphides cannot be ascribed to oxidizing waters, and must have taken place at an earlier period when the surface was relatively more distant.

The lode follows a fissure formed along the axis of a synclinal bend in the schist, and often very noticeably reproduces the structure of the country which it has in part replaced; the ore breaking along lines corresponding to the almost horizontal foliation of the schist. The width of the ore is very irregular. That occasionally found under the clay seam is rarely rich enough to mine; the main pay streak being that portion of the vein bounded underneath by the clay and extending into the hanging until the mineralization becomes so meagre that "ore" becomes "country rock."

When a vein occurs in a formation composed of several kinds of rock it may cut across the lines of parting and be labelled a "true fissure;" or it may conform to them, and become a "bedded vein," if the two beds happen to be similar, or a "contact vein," if they are dissimilar. It is evident that, when a vein crosses the bedding of a series of sedimentary rocks, the differences between the enclosing walls at any given place will depend upon the thickness of the beds traversed, and the extent of the faulting of the country along the line of fissure. When the faulting is slight the change in the wall rock will be practically simultaneous for both sides of the vein; while, when the dislocation is equal to, or exceeds, the thickness of the members of a series of dissimilar beds so intersected, the opposing walls may be entirely dissimilar. This is illustrated in Figs. 3 and 4.

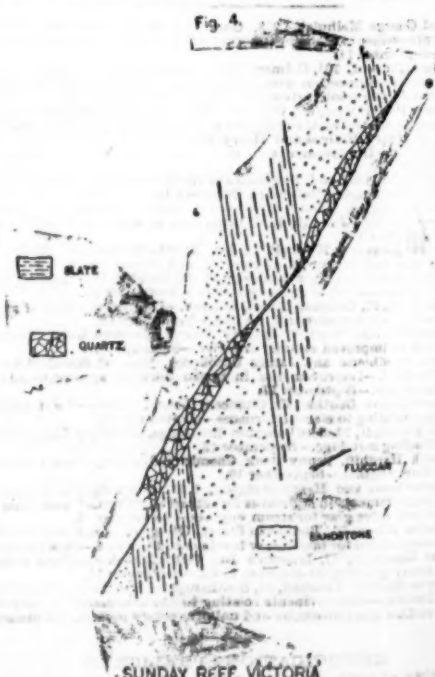
Fig. 3 represents the breast on August 14, 1894, of the north drift of the Jumbo No. 2 vein on the Group tunnel level in the Enterprise Mine, at Rico, Dolores County, Colorado. The vein follows a fault fissure through a series of lower carboniferous shales,

limestones, and sandstones. The throw of the fault, along which the ore has been deposited is about 2 feet; and the section shows



in the figure covers 7 feet by 6. It is characteristic of the veins in this mine that they split up and become impoverished in lime, while in the sandstone, on the contrary, they usually become clean cut, compact and richly ore-bearing, as is the case at the top of the drift represented in the figure. In traversing the lime, the selvage following the line of fissuring is very noticeable; but in the sandstone, particularly where the vein splits, the ore is "frozen," that is, has no evident parting separating it from the enclosing rock.

Fig. 4 is taken from a drawing accompanying a note by Mr. E. J. Dunn, of the Victorian Mining Department, contributed by him to the quarterly report of December 31, 1889. It represents certain



SUNDAY REEF, VICTORIA

features of the Sunday reef, near Beechworth, in Victoria (Australia). The country consists of Silurian slates and sandstones, which have been faulted about 2 feet. Along this line of faulting gold-bearing quartz has been deposited; and it is noticeable that its occurrence is mainly confined to the under side of the sandstone, while under the slate it disappears and gives place to flaccid clay. I would suggest that the lenticular shape of the quartz bodies indicates that the spaces occupied by them were produced by the movement of one of the walls of a fissure, following a line whose undulatory form was caused by the unequal texture and hardness of the beds traversed by it.

* A Paper read before the American Institute of Mining Engineers.

† The French equivalent is *le toit*, "the roof," and *le mur*, literally, "the wall." In German, *das Innere* and *das Liegende*.

* See also Trans., xxiv, 945

(FROM OUR OWN CORRESPONDENT.)

—East and West Growlers, The Crown Cross,

A TRANSFER office of the York Gold Mining Company (Limited), Johannesburg, has been opened at 120, Bishopsgate-street Within, E.C.

(FROM OUR OWN CORRESPONDENT.)

Sixteen additional cyaniding tanks are ordered for the Mercur mill, thereby increasing the capacity of the plant to over 400 tons a day. According to this the company has abandoned its original idea of constructing a second mill at a point below the mouth of the Mattie incline, and will continue to haul its ores to Manning, where it has its own water. With the increased tankage capacity there must be a large increase in the output, and the earnings should soon be doubled. The clean-up now being made is estimated to yield about \$22,000 for the run of 11 days. The quality of the ore now going through the crusher is reported to be finer than ever, and the huge reserves already blocked out for stoping afford an assurance of permanence in the returns. It is thought that the present rate of dividend (\$1.50 per share per annum) will be doubled early next year. In that case the shares will yield as much as those of the Homestake Company; and yet they are selling at \$6, as against \$35. Truly the ways of mining investors are mysterious and hard to reconcile.

with common sense. Perhaps the explanation is that investors do not trouble themselves to examine and calculate, but, where mining is concerned, make it a point of honour to "go it blind."

A gigantic scheme is on foot for developing the placers of Madison County, Montana. These deposits are making richer returns than ever before, but some of them have hitherto been considered as unworkable. There is, in particular, a mass of gravel from 2 to 50 feet thick, which extends for a length of 30 miles along the top of Big Baldy Mountain at an elevation of 10,000 feet above the level of the sea, and some 3000 feet above Alder Gulch, where the present placer workings are situated. It has been found that the south fork of the Madison River attains an elevation which will admit of water being led by flumes of vast and daring construction to the Big Baldy gravel. Some local miners are about to enter upon the undertaking, and if they prove successful their example will lead to many other enterprises of the same kind in various districts. You Englishmen have not yet even begun to appreciate the number and magnitude of our gold fields. This is not to be wondered at, seeing that our own Wall-street financiers are equally ignorant and careless of opportunities, without having our excuse as foreigners for being so. But those of us who with our own eyes have seen the regions in question, and who have ridden and tramped and camped here and there, delving and washing, stand wondering and amazed as we see the desperate rush to remote deserts for gold which is to be picked up at what are virtually your very doors.

The oil wells and asphalt mines of Southern California are producing great wealth, and employing much capital. One of the wells in Los Angeles County produces a clear amber oil known as rock oil, that is worth five times as much as the ordinary crude petroleum. Oil experts say that only two similar wells are known, one in Pennsylvania and one in Russia. Last week a new well in Los Angeles City struck oil sand at a depth of 900 feet, and when the tubing was put in the gas pressure forced a small stream of 30 per cent. gravity oil, light green in colour, above the floor of the derrick. The oil industry of this city is in a more prosperous condition than ever. Oil is quoted at \$1 to \$1.10 per barrel at the well. The Consolidated Asphalt Company has subleased for \$100,000 the right to mine for asphalt upon the Guadalupe ranch in Santa Barbara County for a term of years.

From Nevada an interesting mineralogical discovery is reported. In the Ferguson mining district native chloride of gold is found to occur. If this story turns out to be true it will cast much light upon the oft-disputed problem of how to account for gold in its usual native form. Chloride of gold is eminently soluble, and the gold in its solution is eminently precipitable as pure metal. On the other hand, we are faced with the undoubted fact that gold never occurs pure, but is almost invariably alloyed with silver. Much discussion is now taking place in the Colorado Press as to the merits and demerits of the alleged conversion of silver into gold, and numerous instances are quoted of observations by miners, all tending to show that such a change does continually occur in nature. *Quien sabe?* Carey Lea proved long ago that silver when precipitated under certain conditions assumes a form indistinguishable as to colour, lustre, and other appearances from true gold. The natural powers at work in the "barysphere" may, perhaps, carry the process a stage further, and urge more resemblance along to the goal of identity. In any case, this discovery of native chloride of gold, if confirmed, will reveal another link of the chain connecting the white and yellow metals.

The new dry placer diggings on the Chemehuevi Mountains, in Arizona, are proving very rich. They are in Mohave County, 10 miles from Franconia. There is a good supply of water for drinking and domestic purposes, but not enough for washing gravel or sluicing. Gold is found almost everywhere, but the big pay dirt is in small arroyos on each side of the divide. Nuggets weighing 2 and 3 ounces have been found, and the miners are getting an average of nearly 1 ounce of gold dust per man per day with dry washers.

Wyoming also is a contributor to the record of recent discoveries. In the midst of a well-settled, prosperous agricultural and stock-raising district in the Center Mountains, about 30 miles south of Saratoga, some very rich ledges of auriferous quartz have just been found. The gangue is white and barren at surface, but at a shallow depth it becomes cellular and friable, and carries large quantities of free gold, which is said to "rattle out on being disturbed." If this account be correct, the ledges will probably yield sulphides when sunk upon. They have been inspected by some Cripple Creek men, who vow that their own camp "is not a circumstance" to the new district. All business in the locality is deserted, and no attention is paid to anything but the locating of claims.

The gold belt of Boise, Idaho, has been proved for a stretch of 40 miles north-east of that city. It is now attracting much notice from mining men. Many of the claims have already developed into profitable mines. The Checkmate, for instance, has paid for itself and for all work done on it, in spite of the ore having to be shipped 20 miles by wagon, and then for a considerable distance by rail. The Black Hornet is producing much ore, running over \$75 per ton in carload lots. The Hidden Treasure has always paid its way, and now shows a 16 feet ledge of high grade ore. At Atlanta the General Pettit Mine has \$500,000 in sight in its levels, and is just about to be sold to a New York syndicate. The Viola Mine is showing nearly as much. An entirely new ledge has just been cut carrying ore that assays \$111 per ton. And so the story goes.

Perhaps some of your readers are interested in the Atlantic and Pacific Railway Tunnel Company of Denver, Colorado. It was promoted very many years ago by the late M. M. Pomeroy, better known as "Brick" Pomeroy, and I think a huge circulation of a puffing pamphlet, entitled "The Great Divide," took place in England. Mr. Pomeroy died a month or two ago, and it is now discovered that the company's property in Colorado was sold in 1890 for arrears of taxes, and was then bought in by certain officials and other persons "on the inside." Suit has now been brought by a committee of stockholders to have the sale set aside and the property restored to the company. If there exist any English stockholders who desire to be kept informed of the proceedings, their best course is to put themselves in communication with the secretary of the Mining and Industrial Exchange of New York, at 179, Washington-building, this city.

MOTOR CARRIAGE.—The interest which is now taken by the public in the construction of self-propelling carriages, and the probability that this new feature of our vehicular traffic will shortly be adopted on a considerable scale, is the reason which has, probably, induced Messrs. J. J. Harvey and Co., of 11, Queen Victoria-street, London, to issue an illustrated catalogue of motor carriages, which they are prepared to supply to intending purchasers. The illustrations show that motor carriages, in point of elegance, do not fall short of those of the ordinary description, and now that the Permissive Bill has definitely become law, and will shortly commence to be operative, the motor carriages may be expected to come well into vogue.

The London office of the CARSEL COAL COMPANY (LIMITED) has been removed from No. 90 to No. 83, Cannon-street.

MEETINGS OF MINING COMPANIES.

KAURI FREEHOLD GOLD ESTATES, LIMITED.

THE statutory meeting of the shareholders in the Kauri Freehold Gold Estates (Limited) was held on Tuesday, at Winchester House E.C., Mr. P. G. HAMILTON CARVILL, M.P., presiding. The SECRETARY (Mr. A. H. Singleton) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—You have been asked here to-day in compliance with the Act of Parliament, which requires that within four months from the incorporation of a Limited Liability company what is known as its Statutory meeting must be held. We have, however, no formal business to submit to you. Our initial arrangements have worked quite smoothly, and there is no need to ask you to sanction any amendments or alterations. The board, however, is well pleased to have this opportunity of telling the shareholders what has been done within the four months, what is the present position of affairs, and to forecast as far as possible the policy of the board in the management and development of your property. The company, as you are aware, was registered on June 1 last, with a capital of £250,000, represented by 34,000 shares of £5 each, and cash as working capital to the amount of £60,000. It was the board's first duty to look after the transfer of this property, which I am glad to say was completed without a hitch; and as to the cash, that was lodged in the London Joint Stock Bank, where we have still £50,000 on deposit, as well as £5000 in the Bank of New Zealand in London. The appointment of a local board then required attention. The gentlemen secured are amongst the foremost in Auckland. They stand high as business men, but, more than that, they are all experienced in mining matters, and I am happy to say that in the transactions already concluded they have shown great ability, and that they are possessed of the requisite energy. We had next a general mining manager to look out for, and in these days well-qualified and reliable gentlemen in that profession are not easily obtained. However, I am glad to say that, after due negotiation, we have secured the services of Mr. A. Montgomery, who was at the head of the Mines Department of the Government of Tasmania. Mr. Montgomery has an excellent record, not only in Tasmania, but also in New Zealand, where, before obtaining his appointment from the Tasmanian Government, he held the post of Geologist and Director of the Thames School of Mines; he is, therefore, well acquainted with the geological formation and the methods of mining in the district in which your property is situated. Moreover, his professional career is well known to, and confidently vouched for, by our Auckland board. I may also mention that we have secured the services of a valuable man, who acts as local secretary and assayer; I refer to Mr. Charles Rhodes, who, just before engagement with us, was manager of the Bank of New Zealand, at Paeroa, and had charge of the bank's assaying and refining department there. Paeroa is in the centre of a mining district, and Mr. Rhodes, besides being a good man of business, possesses a practical and useful knowledge of mining. Now, as to the general policy of the board. Considering the immense tracts owned by the company, and considering that these throughout consist of the most favourable class of gold-bearing rock in the Haeraki fields, it is clear that the Kauri Freehold Gold Estates must take high rank as a parent company, and the board has every reason to believe, and confidently believes, that the many subsidiary concerns to be floated in the near future will be to us both profitable and creditable. At the present time we have several properties almost ready for flotation. On the Opitoni block there are three—viz., Lunigan's, the Hilda Mine, and the Maiden reef; and within a short distance of these three there is a well-equipped battery of 10 stamps with water power to drive a much larger number. There are already separate tramways from the battery to two of these mines, and when the necessary cyanide plant (now being put in) is completed, full reports of the trial crasings will be duly published. South of these there are others, the Zalandia, the Golden Hill, and Australia, but we have not yet been able to take these last properties in hand, and we prefer to say nothing about them until we have reliable data. After the introduction of the Opitoni Mine, or probably concurrently with them, we shall have others on the Orewa block to dispose of. There is also a 10 stamp battery working here, to be supplemented as quickly as possible with suitable cyanide plant. This mine has been put in charge of Mr. Peebles, who expects soon to give us very good accounts, but I may say that when the mine was worked before we have unquestionable testimony that the ore crushed (some 1500 tons) produced 2305 ounces of gold. I should have thought that even without cyanide plant these results were encouraging enough, but the difficulties of the old miners were very great, and not least amongst them was an utter inefficiency of capital. Now I have spoken as to properties on Opitoni, and upon Orewa; but there is another property, known to be of considerable importance, on the Otangara block. This is called Murphy's Hill, and in point of introduction we do not believe it will be far behind the other concerns already named by me. Now, while it will be in the power of the board to develop a considerable number of properties for sale annually, they feel—having regard to the area to be dealt with—that it may be desirable to proceed with other aids, and several large blocks—the Waitekauri, and all those north of it, amounting to some 7000 acres, have been thrown open to the public for prospecting and mining purposes on terms sufficiently attractive to the prospectors, while reserving to this Company a substantial interest in whatever measure of success may attend these ventures. The method that we have so far adopted is to grant prospectors isolated claims, 37 chains by 20, or an area of 60 acres each, reserving for the company a moderate amount of the surrounding land, the idea being that in this properties of proved value may fall into the company without, as it were, any expense or risk on their part in prospecting and developing. In connection with these claims numerous licences have been taken out by those prospecting parties, and leases have been applied for, and we know by cable that the necessary surveys are now being made. I may mention that one prospecting party has already been very fortunate. Near to an old working, known as the Lilly Claim, on the Te Ranga block, they are working a remarkably rich but narrow leader, their first trial crushing of 2 tons having produced gold to the value of £675. They have also got a large auriferous reef of a promising character, and the country rock there—as it is almost throughout the whole of our property—is propylite, which is known to be the best stone for carrying good payable lodes. This Te Ranga claim, subject of course to our interests, may be floated independently of us, but if the prospectors wish our co-operation they shall have it, as, in fact, all our lessees shall have, in the flotation of well proved properties. I fear I am detaining you too long; but there is another property—a most important one—known as Tapanahi No. 1, on which I should like to say a few words. Those already spoken of are in the Coromandel block. This is in the Thames district, in a line westward towards Waitekauri. The western boundary of this property is on a ridge of considerable height; and the neighbouring proprietor (Mr. Fleming) finding valuable reefs here, pegged out three claims—th Chester, the Horseshoe, and the Filly; and whether he did this through the want of fixed data or not I do not know, but we do know that the course and dip of the reefs are into our ground, and we also know these claims as pegged out included some of our land, and for a time there was a dispute, but I am glad to say that Mr. Fleming's property has been acquired by the New Zealand Exploration Company, with whom we are on friendly terms, and the dispute may be regarded as satisfactorily settled. One of the directors of that company, Sir Westby Perceval, is also a member of your board. It has been suggested that this company should put up 214 acres against the other company's 214 acres and bring out for joint profit what we believe will make two, or pro-

bably three, excellent mining properties. Eleven reefs have been found here. A battery site has already been selected near the Kiri-kiri River, from which there is a supply of water to drive a large number of stamps all the year round. This ridge, some 1000 feet above sea level, is laterally of the spur and gully conformation, best suited for economical mining. There is a detailed report on this property from Professor Black, of Auckland, a gentleman well known there in the mining world, which is highly favourable; but this is not the time to go into further particulars. As to the other properties, there is detailed information published and maps printed, which, of course, are at the disposal of the shareholders; but I may say, speaking generally, that the leading features of your property are:—Firstly, the auriferous formation throughout; secondly, it is generally of easy access, and particularly so in parts where our harbours are, by steamers and coasting craft; thirdly, at the town of Thames, not far distant from the property, there are excellent engineering shops, and machinery of the first class can be erected expeditiously and economically; fourthly, there are many rivers affording the necessary water power; fifthly, timber for mining purposes is abundant all round; sixthly, there is a sufficiency of labour, to be had on moderate terms; seventhly, and lastly, the climate is favourable for work throughout the whole year. If these features are contrasted with those existing in any other country it will be found that New Zealand, and especially the Kauri Freehold Gold Estates, have very great advantages. In conclusion, I may mention that we have at present 430 shareholders, from which it is apparent that the public have already shown some appreciation of the value of this property. If I have neglected some points, and no doubt I have, for there are other matters upon which I might well have spoken, and if any shareholder here present desires more information than I have given, the board will be only too happy, if they are able, to answer whatever questions may be put. I have spoken to you as to our local board in Auckland. As to ourselves, it would not become me to say anything, but most of our London directors are known to you as identified with successful mining companies, and none of them are connected with any whose shares are at a discount, and on their behalf I can promise that nothing will be left undone in watching your interests, and in the successful development of the great and valuable property entrusted to our hands. (Applause.)

A vote of thanks to the Chairman and directors terminated the meeting.

ISLE OF MAN MINING COMPANY.

The 43rd annual general meeting of this company was held at the Grosvenor Hotel, Chester, on Tuesday afternoon.—Mr. JAMES MACKIE, Chairman, presided, and there were also present Messrs. Frederick North, E. H. Perrin, Henry Churton, F. Potts, and T. H. Dixon (directors), Major Bryan Johnson, Messrs. Cudworth, H. Poole, F. E. Roberts, C. W. Townshend, G. R. Griffith, J. R. Latham, J. B. Light, Robert Roberts, Alfred Barber, R. L. Barber (secretary), and Captain Kitto (manager of the mine).

The CHAIRMAN moved the adoption of the report and statement of accounts. He said they would notice with regret the retirement, through temporary indisposition, of Mr. North from the Chairmanship of the company. They were glad to see his restoration to health, and trusted he might soon see his way to take up the position again. (Hear, hear.) Captain Kitto had, as usual, carried out his duties with the greatest ability, and had neglected nothing that man could do to solidify the position of the mine, and bring about a satisfactory result for the shareholders. The work, as a whole, was on a scale equal to that of any year in the history of the mine. In this connection he would point out that they had included in the ordinary work of the mine the sinking of three shafts, and pushing forward their levels at a speed which was a matter of surprise to those who knew the increasing difficulties at increasing depths in the mine. All this had been done, with very small exception, out of their own resources, the exception being the very moderate—how would any very inadequate—allowance made by their lessors, the Commissioners of Woods and Forests, towards the sinking of Potts' shaft, and practically thereby improving the producing capacity of their property. The 260 and 275 fathom levels at Backwith's shaft had proved somewhat disappointing, and had not yet laid open the quantity of producing ore ground which they had reason to expect. They were now opening out the 290 fathom ground, which was the deepest point in the mine, and there were indications which gave them hope that their exertions would meet with a better result than was shown in the other levels he had mentioned. He could not say more on this point at present. They were now engaged in sinking the Bawden shaft to the 275 fathom level, and towards the cost of this work they had secured a small annual contribution on certain conditions from their lessors, the Commissioners of Woods and Forests. They had during the year completed the sinking of Potts' shaft to the 200 fathom level at which point they proposed leaving it at present. The phenomenal period of drought during the spring and early summer almost completely stopped their water supply. Their big dam, which was greatly enlarged at considerable expense some few years ago, was for some time practically empty. The result of the drought was to reduce the production of finished ore by 150 tons, and the production of silver by 4000 or 5000 ounces, which made a difference of £1200 to £1500 in the course of the year's working. They had at present enough, if not too much, water, their resources in this direction being very greatly increased. In connection with coal, their contracts last year showed a considerable saving on the previous year, and a still larger saving would be effected during the current year. The results generally were remarkable when the depressed condition of the lead market was taken into account. They had earned a very handsome dividend while many British mines were closed or barely paying working expenses. They had gone on the principle of not keeping large cash reserves, as they considered their reserves were in the mine, and visible to a large extent to any shareholder who was able and willing to go down and see them under Captain Kitto's escort. (Applause.)

Mr. TOWNSHEND seconded the proposition, which was carried. The CHAIRMAN then moved:—"That a dividend at the rate of 11 per cent. on the ordinary share capital of the company (amounting to 11s. per share, of which 9s. per share has already been paid in anticipation) be declared; and that a dividend on the preference capital of the company at the rate of 11 per cent. to June 1 last (of which one half year at the rate of 7½ per cent. has been paid) be also declared."

This was seconded by Mr. CUDWORTH POOLE, and carried. On the motion of Mr. LIGHT, seconded by Mr. LATHAM, the retiring director, Mr. H. Churton, was re-elected.

Mr. Charles Coppack, accountant, Chester, was also reappointed auditor, on the proposition of Mr. GRIFFITH, seconded by Mr. BRYAN JOHNSON.

Mr. F. E. ROBERTS moved—"That the thanks of the shareholders be given to Captain Kitto, the secretary, and other officers of the company for their exertions in the interests of the company during the past year."

Mr. LIGHT, in seconding, remarked that the mine was one of the most successful in the United Kingdom. Alluding to the coal contract, he observed from the *Ramsay Courier* that they had contracted with a Scotch firm for 2000 tons of coal. He was sorry to see the contract had gone to Scotland, and hoped that in future Captain Kitto would remember that there were a good many shareholders in Cheshire. At the last meeting the hope was expressed that the royalties would be reduced, which was a very important matter. He asked if anything had been done in this direction.

The CHAIRMAN said they had written most heartrending letters to their lessors. (Laughter.) They had obtained a further allowance of £300 a year, which they hardly anticipated, for the laying of the Bawden shaft. As regarded royalties, they had so far refused to make any reduction.

Mr. F. E. ROBERTS suggested that the names of the directors should be printed, and the CHAIRMAN regarded this as only a reasonable request.

The SECRETARY stated that the present directors were Mr. Mackie

(Chairman), Messrs. T. H. Dickson, F. North, E. H. Perrin, H. Churton, and Frederick Potts.

The resolution was then passed, and replied to by Captain KITTO and the SECRETARY. The latter remarked that in May next he should have served the company for 30 years. (Applause.)

Mr. H. CHURTON paid a warm tribute to the secretary for the able and zealous services he had rendered to the company during a long series of years. He hoped he would be spared to retain the appointment for many years to come. (Applause.)

Mr. F. E. ROBERTS enquired what was the present market value of the shares of the company?

The CHAIRMAN: The market value of the shares was £6, and since that time a large number have been offered—I don't know whether they were executor's shares—but they have reduced the price now to £5, on which there was a sale last week. At that price they seem to me to be very much below their intrinsic value, but that is the market quotation.

The proceedings concluded with a vote of thanks to the Chairman, on the motion of Major BRYAN JOHNSON, seconded by Mr. LIGHT.

THE PROPOSED RAILWAY TO MENZIES.

On Monday a meeting of investors in land, mining, and finance companies in Western Australia was held at Winchester House, E.C., being convened by the directors of Morgans Syndicate (Limited), for the purpose of protesting against the proposal to make Southern Cross the starting point of the Menzies Railway.—Mr. ALLEN H. P. STONEHAM, Chairman of Morgans Syndicate (Limited), was voted to the chair.

The CHAIRMAN said: I think you all know the subject which we have been called here to discuss. It is a matter of vital interest to all of us who are connected with the colony of Western Australia, because so far as London is concerned, we have a very large stake in Coolgardie and Hannan's, and have no interest, or very little, in Southern Cross. It is evident that our representatives in the colony think the matter of vital interest to them, for they have held a meeting at which they protested vigorously against the proposed railway from Menzies being started from Southern Cross. As far as I understand the position, there has been a good deal of rivalry—between Coolgardie and Hannan's, each of those important towns desiring to be made the terminus of the railway to Menzies. It seems to me the rivalry of these two centres has just afforded an opportunity for a small but powerful clique who are interested in Southern Cross to push forward the claims of that place, and whilst the two important towns, Coolgardie and Hannan's, were dividing public opinion as to which of them was to have the honour of the terminus of the Menzies Railway, Southern Cross has slipped in between the two, and pushed forward its claims with a great prospect of their being carried through. It appears to me from the cablegrams I have received that, in view of this position, the Hannan's and Coolgardie people have joined forces against the common enemy—the Southern Cross. Evidently they both think it would be disastrous for Southern Cross to be the starting point of the railway, and, therefore, they have united to protest against it, and they ask us to help them by protesting against it here. Several telegrams have been sent out to the papers and to you, but I think I may as well read them again, and tell you how the whole matter arises. It appears that a meeting was called out there by Mr. Morgans, who represents the Morgans Syndicate, and after we got the first telegram, which was sent out on September 24, we had a second one, which was sent out this morning, saying: "A powerful representative meeting was held on the night of September 25, and the following resolution was passed unanimously: 'That united action be taken by the residents of all mining centres interested to protest against the construction of the railway from Southern Cross to Menzies, and at a mass meeting on Saturday everywhere the universal opinion was expressed that the Southern Cross route would be disastrous to the interests of the gold fields.'"

That telegram was sent by the Mayor of Kalbarrie, and as the other telegram came from a representative of Coolgardie, it is quite evident that these two centres are unanimous. As regards this meeting, after it was called we sent out a cablegram to Mr. Morgans asking him to inform us whether, if this resolution were passed, it would be considered as hostile to the Government, or whether the Government would view it in a friendly manner; and I am glad to tell you that we have got the following telegram in reply:—"The agitation is intended to bring influence to bear upon the Government against the powerful interest in favour of the Southern Cross route. It will probably injure seriously the prospects of the recently-constructed line here, and there is great danger that Coolgardie and Kalbarrie will be isolated from Menzies and from the free gold fields to the North." I think that explains the position pretty well. From the diagram here you will see the effect of what is proposed. The railway from Coolgardie would go through Black Flag, Broad Arrow, Bardoo, Coongarrie, right up to Menzies. It would be very much shorter than the railway from Southern Cross, and would go through several very well-known, highly payable gold fields; while the Southern Cross route would take very much longer to construct, go through barren ground or what is at present not proved payable, and leave these important centres I have named out off from the railway altogether. It is exceedingly doubtful, moreover, whether this line could be constructed in half the time that would be taken to construct a line from Coolgardie. Another point which has struck me is that if the line were constructed from Southern Cross we should only have about half the trains that we should if the railway went from Coolgardie, and that would mean that the freights would be higher than if we had the larger number of trains. I do not think I need detain you with any further remarks, but will at once move the resolution we have to lay before you, namely:—"This meeting of investors and representative of land, mining, and finance companies carrying on business in Western Australia, having heard with surprise and concern that it is proposed to construct the Menzies Railway from Southern Cross direct, thereby delaying the opening of the rich gold-bearing districts between Coolgardie and Menzies, resolves:—(1) That the Chairman of this meeting be requested to communicate with the Government of Western Australia by cable and by letter to the effect that this assembly, representing capital amounting to £25,000,000, strongly protests against the construction of the railway from Southern Cross to Menzies direct, as it is opposed to the best interest of all investors in mining and other industries in the colony; (2) that such a course would be mischievous in the extreme, and its adoption would be regarded as indicating an utter want of consideration on the part of the Government for the interests of those who have invested their capital in the colony."

Lord DOWLING seconded the resolution, and said after the very exhaustive and clear statement which the Chairman had made, it was hardly necessary for him to trouble the meeting with a lengthy speech. He wished, however, to bear witness to his own personal sense of the very great importance of impressing upon the West Australian Government the necessity of abandoning the plan for making the railway from Southern Cross to Menzies, and he was very glad to hear from the telegrams just to hand that the action of this meeting would be in no way considered as an act of hostility towards the West Australian Government, but rather, to a great extent, as strengthening their hands. To anyone looking at the map, and setting aside the question of their particular interest altogether, it must be perfectly clear that it would be much more advantageous to connect Menzies and Coolgardie by the already existing line than by setting to work to build a line for 100 miles through a country which could not pay, and which line would take an enormous time to construct. (Hear, hear.) He had the advantage of hearing the question fully discussed by Mr. Stoneham's brother, who had lately returned from Coolgardie, and that gentleman assured him that the line from Kalbarrie or Coolgardie to Menzies would go over perfectly level country, there would be very little difficulty from an engineering point of view, and the work could be rapidly completed. For those reasons he (the speaker) thought they were perfectly right in impressing upon their

friends out there how fully they were in accord with them in bringing pressure to bear on the West Australian Government. (Applause.)

Mr. J. LOWLES, M.P., said he was in West Australia about nine weeks ago, and happened to be with Sir John Forrest when he received a cablegram sent from London in support of the Government water scheme, and he knew with what pleasure he received it, and how it materially strengthened the hands of the Government in carrying through the scheme. It was his belief that Sir John Forrest would just as warmly welcome the expression of this great meeting, representing as it did vital interests in Western Australia. He had driven over both the surveyed routes—from Kalbarrie and Coolgardie to Menzies, and he confirmed Mr. Stoneham's statements in saying that they both went over level country, and presented no engineering difficulties whatever. When he was at Menzies the question was discussed as to the possibility of a railway going to Southern Cross, and the only justification would be that it would open up a large amount of timber country, and timber happened to be scarce in Menzies just now. But anyone driving from Kalbarrie and Coolgardie to Menzies must be struck by the immense importance of having a railway from one of those two places to Menzies, for, besides the Black Flag, Broad Arrow, and the other places mentioned, it would embrace the 21-Mile, which was now an important centre, the 25-Mile and the 42-Mile, and also benefit those districts which were opening up to the west of Menzies. From his knowledge of the present Commissioner of Railways—than whom a more painstaking, capable and earnest man did not exist in Western Australia—he felt sure that the Government, instead of looking upon this agitation as hostile, would welcome it. There had been a certain amount of jealousy between Coolgardie and Kalbarrie, but they were both now standing shoulder to shoulder against what would be a serious misfortune in having Southern Cross as the starting point of the railway. He felt confident that the action they were now taking would not only be valued by the Government, but have the effect of altering the present arrangement, and he trusted that a railway to Menzies via Coolgardie would be the result. (Applause.)

Mr. DALGETY said when he left Perth about a month ago the idea of having a railway from Southern Cross was not mentioned, except by a few inhabitants of Southern Cross itself. It was not thought seriously about, and he was sorry to hear it now brought forward. It seemed to him that for the line to start from Coolgardie was the right and proper course, and as long as he had the honour of occupying a seat in the Parliament of West Australia he should vote for that line.

Mr. MARTIN said, as Chairman of the Great Southern Railway, he had a strong personal preference for the railway to be made from Southern Cross, as it would benefit his line. (Laughter.)

Mr. W. J. STONEHAM said the last speaker had selfish motives, but he should like to point out that the Great Southern Railway terminated at Spencer's Brook, where goods were transferred to the Government line. That was about 80 or 90 miles nearer Perth than Southern Cross, so that the proposed new line would not affect the Great Southern Railway.

After some further discussion the resolution was put, and carried with one dissentient, and a vote of thanks to the Chairman concluded the proceedings.

DIORITE KING GOLD MINES (W.A.).

The first ordinary (statutory) meeting of the Diorite King Gold Mines (W.A.), Limited, was held on Tuesday, at the Cannon-street Hotel, under the presidency of Mr. GEORGE EDWARDS (the Chairman of the company).

The SECRETARY (Mr. T. van Patten) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—As you are aware, the Companies Act of 1867 prescribes that there shall be a meeting of shareholders within four months after the registration of a company, and we are met to-day to fulfil that requirement. We are not called upon to present any formal report, nor to render any statement of accounts, but my colleagues on the board and myself gladly avail ourselves of this opportunity to submit to you a statement of the position and prospects of the company. The company was established to acquire and to further develop four 12-acre gold mining leases situate in North Coolgardie. The leases are separated—two lying on the north and two on the south—by two other blocks forming part of the Vice-Regent property, which has been fully reported on by Mr. Fearby, the well-known mining engineer in Western Australia, and that gentleman, after a careful survey of those claims, has put it on record that these blocks, which divide our claims, constitute one of the best properties to be found in Western Australia, and one with a great future before it. This opinion has an important bearing on the value of our property, seeing that our claims immediately adjoin or are in close proximity to those of the Vice-Regent. It may be mentioned that on one of the Vice-Regent claims, at a depth of 40 feet, a reef 2 feet 6 inches wide, carrying gold, was encountered. This reef, driven on to the north-west for a distance of 25 feet, showed a strong body of stone all the way in the drive, and was making in width. The Diorite King claim belonging to our property adjoins at the north-west the Vice-Regent claim to which I have just referred, and as our claim lies in the direction the lode is taking, we may look forward to striking it as our developments progress. With regard to another claim, Mr. Fearby describes the existence of a dyke formation similar to that of the Great Boulder at Hannan's, and which in his opinion will prove as rich in quality. Samples of the ore taken by that gentleman yielded from 3 to 13 ounces per ton, and it would appear that a large bulk sample assayed as high as 33 ounces. I have made reference to our neighbours' property because of the contiguity of our claims, and because I think there is every reason to expect that as we develop we shall meet with as much success. So far we have received very encouraging news from the manager at our mines. His reports go to prove the existence of important gold-bearing reefs on our property. On August 12 he cabled as follows:—"Have begun to sink new shaft. Reef proved for a length of 200 feet. Reef visible at surface, 4 feet 6 inches wide. Reef has an average assay value of 4 ounces per ton. Sunk 10 feet on the vein." Following and confirming this by letter, under date August 19, our manager wrote us to the following effect:—"On opening up the reef 50 yards east of the old shaft I found there was a very large body of quartz, carrying gold for a considerable distance on the surface. When I left this shaft was down 10 feet in a large body of stone over 5 feet wide at this point, carrying good gold." I may mention that in a more recent telegram the manager advises us that in the old shaft, at a depth of 30 feet, he met with a body of ore that assayed 30 to 35 ounces of gold per ton, and that a sample taken at a depth of 60 feet assayed 21 ounces of gold to the ton. There is nothing farther of importance that I can think of to tell you with regard to the property and the developments, but I should like to say the subject of the machinery occupies the careful attention of the board. We have recently given instructions for the purchase and erection of a saw milling plant, and an engine of sufficient power not only to work the saw mill, but also to do the hauling and winding. It is rather premature to order the machinery for the treatment of the ore, but that matter will be taken in hand immediately the state of the developments warrants its erection. An important advantage we possess is that we have plenty of water of good quality, and there is also timber in our vicinity. The transport and telegraphic facilities are improving rapidly. It cannot be long before the projected railway to Menzies becomes an accomplished fact, and as for the telegraph, it has now reached Niagara. Both of these places—Menzies and Niagara—are on the direct road to our locality. In conclusion, gentlemen, I would like to mention that our four claims have been duly transferred to the company, so that we are now in legal possession. I have desired to give you as full information as possible at this early stage of the

company's existence, but should any shareholder wish to put any question, I shall be happy to answer it.

Mr. CUFF said he took it that several months might elapse before it was deemed advisable to erect crushing machinery.

The CHAIRMAN: Yes, it is only recently that we came into possession of the property.

Mr. HEASMAN: What is our working capital at the present moment?

The CHAIRMAN: Our working capital is £35,000 in shares, have placed £15,000, so that we have a cash working capital that amount, leaving £20,000 in shares as a reserve. We have ample for the purpose of developing the property in a very satisfactory manner, and also for the provision of whatever machinery we may require.

A SHAREHOLDER: £15,000 is the subscribed capital you have in hand?

The CHAIRMAN: Yes, part of which has been called up.

On the motion of Mr. HEASMAN, a vote of thanks was passed to the Chairman and directors, and the proceedings terminated.

HAMPTON PLAINS ESTATE, LIMITED.

The first annual general meeting of the shareholders of the Hampton Plains Estate (Limited) was held at the Cannon-street Hotel, on Thursday last, for the transaction of the ordinary business.

Lord ARTHUR BUTLER (Chairman of the company) presided, and a notice calling the meeting was read by the SECRETARY (Mr. G. W. Jeffery).

The CHAIRMAN, in moving the adoption of the report, said that when he last addressed the shareholders he indicated what the policy of the board would be in dealing with the estate, and laid special stress upon what were considered the two most important items of the programme. The first of these was the providing of a water supply on the estate, and the second was the handing over to subsidiary companies the prospecting and development of various blocks of land. Dealing with the water question first, he would mention that the board purchased a diamond boring machine, sent it to Coolgardie, engaged an engineer to superintend the operations, and gave directions that boring should be commenced at the Cane Grass Flat, a large catchment basin, about 9 miles long and about 7 miles from Coolgardie. The board hoped a large supply of water would be tapped here, and were not disappointed, for shortly after boring was commenced news was received that subterranean water had been met with. The board then considered long and carefully how this matter should be dealt with, and their ultimate decision led to the formation of the Coolgardie Waterworks (Limited), in which this company had a very large interest. The manager of the waterworks estimated that with the present plant alone a revenue of £32,000 a year would be obtained by supplying the Coolgardie and the neighbouring mines with water, while this revenue would be nearly doubled by the erection of condensing and other machinery. Turning to the second item of the board's policy, viz., the formation of subsidiary companies, the Chairman congratulated the meeting on the manner in which that policy had been carried out; for up to March 31 blocks 42, 45, and 50 had been sold to separate companies, the areas being over 40,000 acres, the subscribed working capital £30,000, with a reserve for working capital of £50,000, making £140,000 in all. Of course, the Estate Company had a substantial interest in all these subsidiary concerns. Since March 31, blocks 40, 32, 35, 37, and 39 had been taken over by three subsidiary companies, and these blocks comprised an area of over 36,000 acres, these companies having a subscribed capital of £65,000, with a reserve working capital of £45,000. Negotiations were in progress for the sale of block 44, and there was every reason to suppose they would be satisfactorily concluded. In this way the company would have disposed of all the outlying blocks of the estate, with the exception of block 41 (4000 acres). It was not, however, the intention of the board to part with blocks 59, 53, 51, and 48, consisting of over 134,000 acres, because they regarded them as especially valuable, not only from their proximity to Coolgardie, but from the favourable reports that were received from them. In fact, the board intended to develop these by giving mining leases, &c., and block 59 had already been thrown open to prospectors. Blocks 48 and 53 were being prospected by the London and West Australian Exploration Company and the Hampton Gold Fields Company, who were in the receipt of very encouraging news with respect to them. The board had issued instructions for the formation of prospecting parties for the opening up of certain promising reefs, and when formed into companies the directors would take care that shareholders in the Plains Company had a prior right to the subscription of capital. In regard to the pastoral lands, the directors felt that for these to be dealt with profitably operations must be carried out upon a larger scale than had hitherto been attempted. The board had spent in a £149,000 upon the estate, of which £28,000 had been charged to profit and loss, £9500 to suspense, and £12,000 appeared in the balance-sheet as capital. The board would have been justified in charging the whole £149,000 to capital, but they had preferred to apportion it as described. It was not intended to declare any dividend under one and a-half year's working, but to make a return of capital of 4s. per share, or 20 per cent., which would absorb £70,000, being £10,000 in excess of the value of the land sold to subsidiary companies. After this distribution the company would have £60,000 in hand as working capital, being £10,000 in excess of the amount with which they started. (Loud cheers.) The board were as fully convinced as ever of the value of the property, and considered that only patience was required to demonstrate that value more conclusively. (Cheers.)

Mr. LAPAGE (director), who has just returned from visiting the estate, described the great progress of Coolgardie, which was about 3 miles distant from the company's estate. It now had 10,000 inhabitants, its streets lighted by electricity, and the railway in the town. He visited blocks 48, 51, 55, and 59, and also block 50, now owned by a separate company. The township of Hampton had been surveyed and approved by Government, and a part of it had been sold; building operations were going on, and several houses had been finished. He confirmed what the Chairman had said with reference to the Coolgardie Waterworks, which had put down seven bores over a distance of about 1½ mile, and the pump had been at work on one of the bore holes for several days in succession for the purpose of testing the supply, pumping at the rate of 45,000 gallons per day, and this apparently made no impression upon the supply. (Cheers.) He confidently believed that at least 500,000 gallons might be drawn from this source daily. In visiting the claims worked on blocks 53 and 48, he saw stone being brought out containing gold, the reefs having every appearance of permanence. On block 59 there were alluvial workings, both to the north and south of Hampton, and many gold mining claims had been pegged off. He also visited block 50, which was most promising, and in which this company had a large interest. He was much impressed by the promising look of its reef, and closed by saying that the company was possessed of most valuable property with immense possibilities. (Cheers.)

Mr. ALLEN H. P. STONEHAM (managing director), who was loudly cheered on rising, said he did not wish to withdraw one word of what he had said at the previous meeting of the company, because he was more than ever convinced that they were pursuing the right policy, and developing the estate as quickly and as satisfactorily as any man could possibly desire. Shareholders must remember that this was an investment company, owning a large estate, or rather a conglomeration of large estates, each of which was equal to a moderate-sized county in England. Perhaps they would understand it better if the meeting thought of the time it would take to develop Middlesex. Let them remember that the work this company had in hand was the exploration of many estates many times the size of Middlesex. (Cheers.) It was just three days less than two years since the Hampton Plains Estate Company was registered, the prospectus being dated October 1, 1894. It provided £50,000 working capital,

which the board knew to be inadequate. At that time the company was a long way from a railway, and quite six months elapsed before it could commence active work, because the directors had to appoint the manager, so that really, although the accounts covered 18 months, not more than nine months' actual work had been done, and that only in a desultory way. That £50,000 had been expended on the estate, and according to all arithmetical law, there should not now be a single penny in hand, but this company had put arithmetical law at defiance—(laughter)—for it had sufficient in hand to return to the shareholders £70,000, or 20 per cent. on their capital, £65,000 to work the property, and £220,000 available for prospecting the estate, and which would be spent upon it during the next two or three years. If such a result were not satisfactory, then, personally, he despaired of ever submitting to a body of shareholders anything that was satisfactory. (Loud cheers.) Search the records of the old E. I. India Company, the Hudson's Bay Company, the Australian Agricultural Company, or the Chartered Company, and see what they had done in the first three years of their existence, as compared with what had been achieved by the Hampton Plains Estate. (Cheers.) Why, when they first commenced to bore for water they were ridiculed by all the learned geologists in Australia, but now the engineer of the Coolgardie Waterworks told them the supply was worth at least £30,000 a year. Of course, that income would grow, and remember that the Plains Company was the largest shareholder in those waterworks. The first point in development was to obtain a sufficient water supply, and he claimed that they had done so. He also claimed a good deal more; that, in the face of many difficulties, numbers of gold-bearing reefs had been discovered far greater than those named in the report issued to the shareholders. The engineer spoke of these reefs as varying in width from 3 feet to 12 feet, and even 100 feet. It was impossible to think such reefs were not permanent; and there was a great probability that one of them alone would be found to be of more value than the whole capital of the company. This was a bold statement; but then, the capital was only £350,000. The board were exceedingly satisfied with these discoveries, and block 50, with its small mill, was almost ready to crush. They had considered what would be best for the general well-being of the mines on the estate, and had come to the conclusion that the most sensible, economical, and efficient way of dealing with the ore was for this company to erect a 50 or 100 stamp mill at some convenient spot, for the use of all the mines at a fixed charge. Some people talked of this company only benefiting their grandchildren, but he believed it would benefit himself, although he had paid as much as £5 10s. for a great many of his shares. (Loud cheers.)

LORD DONOUGHMORE congratulated the board on the results they had produced, and was followed by Mr. MACDONALD, of the firm of Messrs. Mathieson and Co., of Lombard street, who adduced figures to show that the company was in a far better position than the balance-sheet brought out.

The report was unanimously adopted.

On the motion of Mr. PHILLIPS, seconded by Mr. H. S. HARDIE (of the firm of Messrs. Hardie and Turnbull), the auditors were re-elected, and a further motion awarded 100 guineas to each of the trustees of the debenture-holders, whose duties have now ceased, as the debentures were paid off nearly a year ago.

At the extraordinary general meeting which followed immediately, the CHAIRMAN proposed "That the capital of the company be reduced by paying off capital not at present required by the company, and returning the same to the members at the rate of 4s. for each share, upon the footing that the sum returned may not be called up again."

Mr. C. A. MOREING seconded the motion, which was carried unanimously, and the proceedings closed with a hearty vote of thanks to the Chairman.

SOUTH SWAZIELAND GOLD AND EXPLORATION COMPANY (LIMITED).

An extraordinary general meeting of the shareholders in the South Swazieland Gold and Exploration Company (Limited) was held on Monday, at Winchester House, E.C., Mr. Albert M. Armstrong, at whose instigation the meeting had been called, presiding. The Chairman, in moving a resolution to the effect that another meeting of the company be called for the purpose of removing the present directors and appointing another board, alleged that the directors had proved that they were incompetent to manage the affairs of the undertaking. Mr. Massey, the Chairman of the company, replied to the assertions made by Mr. Armstrong contradicting the allegation that the capital subscribed by the shareholders had been wasted. On the contrary, the property had been worked for a year and a half, and they still had their reserve working capital intact. Mr. Samuel, another director, also spoke, and the resolution on being put was lost, only the Chairman and Mr. E. M. Armstrong voting for it.

TRIUMPH (HAURAKI) GOLD MINES (LIMITED).

An extraordinary general meeting of the shareholders in the Triumph (Hauraki) Gold Mines (Limited) was held on Tuesday, at Winchester House, E.C., for the purpose of confirming the resolutions passed at a previous meeting, providing for certain additions to the Articles of Association, in order to comply with the recent Act of the Legislature of New Zealand. Mr. C. E. Hogg, who presided, in moving the necessary resolution, said the directors were delaying the date of the annual meeting in order that when the shareholders next met they would be in a position to give them definite information in regard to the development of the mine, the output and the result of the first crushing by the battery, which the manager expected would be completed very shortly. Mr. Slaterson seconded the resolution, and it was carried.

PIONEER DEVELOPMENT COMPANY OF BRITISH COLUMBIA (LIMITED).

The statutory meeting of the shareholders in the Pioneer Development Company of British Columbia (Limited) was held on Wednesday, at Cannon-street Hotel, Mr. H. G. CAMPION presiding. The Chairman said the services of a most capable man had been engaged to represent the interests of the company in the colony, with the result that already they had benefited by the appointment. They had up to the present secured six properties, and steps were being taken to proceed to the adequate development of them. The Campbell and the "N. P." were spoken of by their agent in very gratifying terms, but as yet they had received no particulars in regard to the other four claims. The directors were now considering the advisability of dispatching fully-equipped exploration parties to British Columbia, in order that they might have the opportunity of pegging out claims direct instead of going to the expense of purchasing them from the original vendors. A vote of thanks to the Chairman terminated the meeting.

LEFROY GOLD MINES (W.A.), LIMITED.

The statutory meeting of the shareholders in the Lefroy Gold Mines (W.A.), Limited, was held on Wednesday, at the Cannon-street Hotel, when Mr. Douglas A. Onslow, who presided, stated that the nominal capital of the company was £120,000. The property was situated about 1½ mile from Lake Lefroy and 5½ miles south of Coolgardie. It comprised three mining leases 51 acres in extent, the price paid being £12,500 in cash and 77,500 in fully-paid shares. The company also contributed £500 towards the expenses of forming the undertaking. The issue of 20,000 shares was very successful, and after paying the liabilities before mentioned out of the amount realised, they had £7000 left for working capital. There were also 22,500 shares held in reserve. In regard to the appointment of mine manager Mr. J. H. Griffiths had been recommended to the board, but had not yet been permanently appointed. The various reports which the directors had received spoke very highly of the prospects of the property. A considerable amount of development work had been executed, with the result that four large and several smaller quartz reefs had been struck. A vote of thanks to the Chairman concluded the meeting.

KOOTENAY PROMOTION SYNDICATE (LIMITED).

The statutory meeting of the members of the Kootenay Promotion Syndicate (Limited) took place on Wednesday, at the Cannon-street Hotel, Mr. R. B. Tetley presiding. The Chairman said the syndicate was formed for the purpose of raising the capital of an exploration company for British Columbia, where the outlook was quite equal to that in the other colonies; as not only had the country been proved to contain gold-bearing reefs, but also nearly every other kind of mineral. The syndicate was formed on somewhat unusual lines, inasmuch as that the share capital was only £200; the remainder of the money required being issued in debentures, the object of which was to allow the directors to refund the money without any difficulties being placed in the way. The Pioneer Development Company of British Columbia, which was formed by the syndicate, had met with every success, and they hoped to derive a large profit from the interest they held in the concern. A vote of thanks to the Chairman concluded the meeting.

MONA GOLD MINE (LIMITED).

The statutory meeting of the shareholders in the Mona Gold Mine (Limited) was held on Wednesday, at Winchester House, E.C., Mr. Roger A. Garside presiding. The Chairman said the capital of the company was £75,000, of which £25,000 was set aside for working capital. In regard to the management they had arranged for the Hon. H. J. Saunders to act as their agent in Australia, and with Mr. O'Brien to also act as mine manager. The property was being rapidly developed, and on September 27 a cablegram was received, which stated:—"O'Brien reports No. 1 shaft timbered down to 62 feet from surface; driven 102 feet on the course of the reef north and south of the shaft; average width is 5 feet; prospects are equal to assay 10 ounces per ton; there is every appearance of permanence. No. 4 shaft timbered down to 35 feet from surface; underlie shaft shall sink until we reach water level; expect to reach water level at a depth of 135 feet; the width of the reef is 3 feet, worth 4 ounces per ton. Work is being pushed ahead; all will be ready on arrival of machinery. Have called for tenders for sinking main shaft; am now building condenser to supply men and horses. I have every confidence the mine will undoubtedly become a very valuable property. H. J. Saunders has returned from the mine, and is very well satisfied with it. Has given instructions for the further development of the property to be most energetically worked." As to machinery, a 10-stamp battery would be erected on the property very shortly. A vote of thanks to the Chairman concluded the meeting.

HAINAULT GOLD MINE (LIMITED).

The annual meeting of the shareholders in the Hainault Gold Mine (Limited) was held on Tuesday, at Waterloo Rooms, when Mr. W. D. Gillies, who presided, in moving the adoption of the report, said when he addressed the shareholders a year ago, he expressed the hope and belief that in about 12 months from that date the company's mill would be erected, ore would be coming out of the mine, and returns beginning to come in. Well, although they had not managed to do all these things within the 12 months, yet, to judge from the latest advices from their engineer in Western Australia, they were within measurable distance of doing so. Mr. Norman, in a cable, said they hoped to begin crushing about the middle of next month. The Chairman went on to refer to the work of the year in the transport and erection of plant, the carriage of machinery and tools costing about as much as the machinery itself. He also read extracts from reports regarding the value of the mine and its future, all of a favourable nature. The report was unanimously adopted. A shareholder asked whether the Chairman could give any explanation with regard to the fall in shares? The Chairman said it was difficult to speak about these things in a public meeting, but he believed the fall was due to financial difficulties on the Stock Exchange—to persons taking over a greater number of shares than they could hold. It had nothing to do with the mine. The auditors (Messrs. Sloanes and Mitchell) were reappointed, and the meeting terminated.

LADY MARY AMALGAMATED GOLD MINES (LIMITED).

The first ordinary general meeting of shareholders in the Lady Mary Amalgamated Gold Mines (Limited) was held on Wednesday, at Winchester House. Mr. John Fell, who presided, in moving the adoption of the report and accounts, said that when the mines were first discovered the prospect was undoubtedly a very good one, but difficulties afterwards arose in connection with the company's operations, which certainly could not have been foreseen. The nature of the rock offered one obstacle, while there was also a considerable scarcity of water. This was eventually overcome, but it was afterwards found that the lode had pinched so much as to be practically non-payable. The Lady Mary Mines consisted of a very considerable area—namely, 35 acres, right in the heart of a gold-bearing country. They commanded practically the whole dip of the mine, known as the Cue 1, and on the other side, on the Lady Mary South, they also commanded certain minerals. The position altogether of this central block was far from being one which should create anything of the nature of despair as to the ultimate success of the undertaking. At the same time he should be sorry to say anything which might lead to an undue appreciation of the company's property. Perhaps the best course would be to wait further consideration of the position. Mr. A. Woolley Hart seconded the motion for the adoption of the report and accounts, which was unanimously carried.

CARATAL MINING COMPANY (LIMITED).

An extraordinary general meeting of the shareholders in the Caratal Mining Company (Limited) was held on Thursday, at Winchester House, E.C., Mr. Stanley Banning presiding for the purpose of winding up affairs of the company, and forming a new one, to be called the Caratal (New) Mines (Limited). The Chairman said the matter was fully discussed at the last meeting so that it was unnecessary for him to address them at any length to day. Sir Henry Bunbury, who had taken a great interest in the matter, had written regretting his inability to attend, and hoping that the resolutions would be passed without any further difficulty. Replying to Mr. Sutherland, the Chairman said proxies for 507,632 shares had been received in favour of the board, and proxies for 13,650 shares in favour of the gentleman who asked the question. The difficulty with regard to the tailings was now in the hands of a gentleman whom they confidently expected would bring about a satisfactory settlement. The resolutions, on being put, were carried with two dissentients, and the meeting concluded with a vote of thanks to the Chairman.

PANGA AND SILINDI COMPANIES (LIMITED).

The second ordinary general meeting of the shareholders in the Panga and Silindi Companies (Limited) took place on Thursday, at the Guildhall Tavern, E.C., when Mr. W. N. Toulmin, who presided, in moving the adoption of the report and accounts, said at present they had £1123 in the bank, £4129 invested in first-class South African securities, £5156 due on shares sold, but for which amount cheques had just been received, £9000 due to them from the Maratonga Development Company, and £1257 which was advanced to the South Zambesi Development Company with preference shares for security. Speaking of the properties possessed by the companies, the Chairman said the Maratonga claims had been very favourably reported on; and the Maratonga Development Company had been formed to take them over. They held 43,375 shares in the affair, and anticipated that the asset would prove a very valuable one. The directors were favourably impressed with the value of the 100 claims and the 70 claims situated in the Umtali district, on both of which they had acquired options. Their agent was also enquiring into the merits of various claims in Rhodesia which had been offered them. The 100,000 shares in the South Zambesi Development Company, who had purchased of them four-fifths of their concessions, was regarded by the board as an asset, from which in the near future they would derive excellent returns. The resolution was seconded by Mr. E. P. Davis, and carried unanimously.

McCULLOCH COOLGARDIE GOLD MINES, LIMITED.

An extraordinary general meeting of the McCulloch Coolgardie Gold Mines (Limited) was held at the Cannon-street Hotel, on Thursday, Mr. C. E. Hogg presiding.

The SECRETARY (Mr. H. D. J. Chudleigh) read the notice convening the meeting.

The CHAIRMAN, after reading a letter from the Chairman of the company, expressing regret at his inability to be present on account of having contracted a severe cold, and stating that he cordially approved of the object of the meeting, said: The meeting is called for the purpose not of reconstructing, as is usually understood by that term. A reconstruction takes place when the whole of the capital of a company is exhausted, and it is necessary to procure further funds to carry out the objects of the company. In this particular instance such is not the case. When this company was floated a reserve of £10,000 was made in shares, on which to raise further capital when the occasion arose. The question of how best to act upon the original intention was continually discussed, not only by your board but also by some shareholders, representing together some 30,000 shares, and after very mature deliberation they came to the conclusion that under the present condition of the market it would not be advisable to attempt to issue the 10,000 shares held in reserve as preferential shares, or, in fact, to deal with them in any way whatever. It was felt that if they used those shares to raise further capital the other shares would be saddled with so large a proportion of dividend which would have to go to remunerate the persons willing to take up preference shares or debentures in a mining company, that it would be better—the capital of the company having been £90,000, of which £80,000 was issued—to wipe off the £10,000 altogether, and reduce the capital to £80,000. That is a remarkably small capital for so large a property, which consists of about 32 or 33 acres, and the reports under the revised management promise to come up almost to the early expectations formed of the property. It was, therefore, considered advisable to reduce the capital from £90,000 to £80,000, and ask the shareholders themselves to consent that their shares should be issued to them at 17s., leaving a liability of 3s., so that instead of having to contribute to preference shareholders, they would themselves receive and absorb whatever profit might have been derived by those persons. I have never failed to urge on my co-directors a change of management and a change of policy, and I am glad to say that those gentlemen, viewing the matter carefully, came some time ago to the same opinion, and we made a clear sweep of the whole concern. We then sent out Mr. Lander, and from the correspondence we have received, I have reason to believe that he is doing his duty. But to supplement any deficiency in that gentleman we have procured as consulting engineer, at a remarkably moderate fee, Mr. Cann, the engineer in charge of the largest battery and mining operations in Coolgardie, whose dwelling and business is within a few feet of our property, and, in fact, it adjoins it. With regard to the property itself, I have always maintained a moderate opinion of it—that under proper supervision and management it would be a good paying concern, that under bad management it would be a drag on the shareholders for ever, because the grade of the ore is so low—somewhere about 1 ounce or a little under—that the margin of profit is not large. Therefore, it requires all the more skilled management to win all the gold. You may ask why we want this money just now. There are several reasons, but the chief reason is this: By looking at the plan you will see there are two blocks belonging to other persons, and we have a remote block, No. 23, which must be worked independently. Our manager cables: "My proposal to the directors would be to concentrate the forces of the company on Block No. 23, as this block shows a splendid reef highly mineralized, and about 4 feet wide. Two trial shafts have been sunk on this block, and both go to show that the property is a valuable one. This is a valuable property, judging from present indications, and the shaft may have to be sunk very deep before all the ore is extracted." The other cables bear upon that:—"I am anxiously awaiting orders from your directors to go on with the sinking of the main shaft on Block 23, as I am persuaded this is a valuable property, and only requires development to give a profitable return." On September 29, he cabled:—"Block 23. It is intended to sink the shaft to a depth of 100 feet." There is already an underlay shaft in the property, proving the existence of the lode. "We believe we are near the Golden Bar lode. I anticipate that it will probably result in 2 ounces per ton." That is a higher anticipation than I ever had myself. "The vertical depth sunk is 60 feet. I have not sufficient funds in hand to enable me to carry on work on Block 23. Remit by cable £500. Steam pump for the supply of United Mines Ore Reduction Company (Limited) works exceedingly well." As you are aware, we are supplying the United Mines Ore Reduction Company from Block 25 with that large body of water which enables them to run 30 head of stamps, and we could supply enough for 50, I believe. We are selling that water to them, and realising a very satisfactory profit, which, of course, is going in reduction of expenses in other operations connected with the mine. I am consulting engineer of the United Mines Ore Reduction Company, and I am in a position to know what it has cost us on the mill, which the McCulloch property partly owns, to win the gold from the quartz. The other day at a meeting I was able to say from 11 to 12 dwts. to the ton was the point at which the difference between profit and loss was reached. Had I waited two or three days I should have been in possession of more accurate information, bringing down the margin to 7 to 8 dwts. If you take away the excessive cost of water to the mill, the battery is only costing 14s. a ton. That is a remarkable record. I am speaking of thousands of tons, for large operations have been carried on. To the 14s. a ton you have to add the ordinary cost of raising and winning the ore. Put that down at 10s. a ton; that is 24s.; put down general expenses and so forth at 4s. or 5s. more—say, 30s. in all—and that 30s. should give the balance. Then we come down to the problem where 7½ dwts. is the point which pays expenses, and 8 dwts. and so forth is the point where profits and dividends are likely to come in. Of one thing I have always been satisfied, and I have never had reason to waver, even under the adverse management of the mine, and that is that this mine has a very large body of ore. That ore, we have every reason to believe, from the large number of tests made, will run 15 to 18 dwts. to the ton, allowing practically a profit of 30s. to £2 on every ton raised. That is a very large profit. But though I place the ore at that grade I must not forget that the people on the spot anticipate 2 ounces to the ton. I do not wish to discount that good news, but at the same time I belong to that class of persons interested in mining who have no desire to excite unnecessary expectations. I say if that be discounted by 50 per cent., and we get 1 ounce or 15 or 18 dwts., we have a property which will pay. Though you have a property which has suffered in the past, it is coming to the fore just as certain as we are in this room. Having the property, we require the money to work it. I am myself, with my family, one of the largest shareholders in the company, and I cheer-

fully agree to this scheme. You are also aware that the whole of the proceeds, less the sum of £3000 required to pay off the mortgage, will go to the credit of the company, and I am very pleased to be able to tell you that the Australian shareholders, pleased to the extent of about £21,000 and are on the whole, have authorised their attorney to support this resolution, and the late secretary has volunteered to collect the whole of the funds from that large subscription and remit them to us. They are people who know what they are doing, and if the mine were not considered worth it they would not contribute on all their great holding; they would abandon it and say "You can have it all in London,"—but they say, "We will pay your calls, and we believe in the project." The Chairman concluded by moving the following resolutions:—(1) That it is desirable to reconstruct the company, and accordingly that the company be wound up voluntarily, and that Mr. James Paton, of 133, Cannon-street, in the City of London, deputy secretary, be and he is hereby appointed liquidator for the purpose of such winding-up, at the remuneration of 40 guineas, including clerical assistance, but exclusive of disbursements. (2) That the same liquidator be and he is hereby authorised to consent to the registration of a new company, to be named the McCulloch Coolgardie Gold Mines (Limited), with a Memorandum and Articles of Association, which have already been prepared with the privity and approval of the directors of the company. (3) That the draft agreement submitted to this meeting and expressed to be made between this company and its liquidator of the one part, and the said new company, the McCulloch Gold Mines (Limited), be and the same company, the McCulloch Gold Mines (Limited), be and he is hereby authorised, pursuant to Section 161 of the Companies Act, 1862, to enter into the agreement with such new company, when incorporated, in the terms of the said draft, and to carry the same into effect with such, if any, modification as he thinks expedient.

Mr. VITTON seconded the resolution, and said he had examined the mine very carefully in every department, and was certain the lode went down to a great depth, and that an immense quantity of ore would be raised from it.

The resolutions were unanimously carried.

A vote of thanks to the Chairman terminated the meeting.

ARAKAKA PLACER AND MINING COMPANY (LIMITED).

The seventh ordinary general meeting of shareholders in the Arakaka Placer and Mining Company (Limited) was held on Sept. 10, at the company's registered office, Lot 15, Water-street, Georgetown, Demerara, the Hon. B. Howell Jones, Chairman, presiding. In moving the adoption of the report, the Chairman regretted that there was a loss on the actual working during the past half-year of \$902.78, but making certain deductions in respect of accrued interest the net loss was only \$429.18. A change of management had been considered advisable. Mr. Bratt, the second in command, having been appointed manager. Certain improvements had been effected on the property, with the result that the returns had increased. He, the speaker, had visited recently the reefs of the British Guiana Gold Fields Syndicate were gradually going closer and closer to their property. Before long the directors hoped to receive good offers for the option to purchase their mining claims. In regard to the future, they anticipated that, with a reduction in the working expenses, they would be able to turn a profit in the next half-year.—Mr. Winter seconded the resolution, and it was carried.

BARIMA GOLD MINING COMPANY (LIMITED).

The seventh ordinary general meeting of the shareholders in the Barima Gold Mining Company (Limited) was held on September 14, at the registered office of the company, Lot 15, Water-street, Georgetown, Demerara, Mr. Robert Allan (Chairman) presiding. The Chairman, in moving the adoption of the report, congratulated the shareholders on possessing such a valuable property. When they started crushing in July they had a balance at their bankers of \$394.34. The first shipment of gold realised, he was pleased to inform them, \$17.85 per ounce, and they were given to understand that the second shipment would command even a higher price. With reference to the tailings, a sample had been sent to a company in London with a view to making arrangements for the erection of a plant on the mine to recover the gold contained in them. Their expenses for the six months had been \$36,173.29, while for the two months during which they had been crushing it was \$17,400. The question of a Government grant for the 11 claims of the company's property was now receiving attention.—Mr. George Garnett seconded the resolution, which was agreed to *nem. con.*

A HALF-YEAR'S WORK AT CRIPPLE CREEK.—The Colorado Investment Company (Limited) have received from Mr. L. F. Parsons, Secretary of the Colorado Mining Stock Exchange, a certificated summary of the results of the mining operations in Cripple Creek from January 1 to June 30 of this year. The following are extracts therefrom. List showing production per diem of the most important Cripple Creek mines:—

Mine.	Tons per day.	Mine.	Tons per day.
Portland	75	Geneva	10
Independence	25	Union	15
Elkton	20	Bankers	5
Raven	20	Last Dollar	5
Moore	10	Pharmacist	5
Doctor	20	Acacia	5
Amoco	25	Moon Anchor	10
Anchor	15	Vindicator	5
Gold King	15	Keystone	5
Ironhead	10		
Veter	10		
Theresa Vista	30	Total	340

The small shipments from other mines in the district, which can only be estimates, bring the amount very close to 500 tons per day. A careful estimate of the value of the ore as shown above, compiled from correspondence held with mills, reduction works, smelters, and different railroads running into the camp, gives the total value of ore shipped from Cripple Creek in the six months last past, beginning January 1 as \$7,256,000 (equivalent to \$12,000 ounces). This would make the output of gold and silver from Cripple Creek for the year 1896 at very close on \$15,000,000. This, of course, is not allowing for possible contingency of strikes and labor troubles, or a railroad squabble. I believe the above estimates to be as nearly correct as it is possible to get them at this time of the year, it being hard to get exact figures from some companies, owing to the fact that they do not make a semi-annual statement. I have, however, no hesitancy in recommending these figures to the investing public, and placing my endorsement thereon. The Consolidated Kansas City Smelting and Refining Company state, on June 25, that they had received shipments from Cripple Creek, aggregating in value, gold \$3,629,984 (equivalent to 181,499 ounces). The Philadelphia Smelting and Refining Company state, on June 25, that they have received from Cripple Creek during the first six months of the year (approximating June 30) 50,000 tons of ore, that average 3.33 ounces of gold per ton, making a total of 166,500 ounces.

The AUSTRALIAN ESTATES AND MORTGAGE COMPANY (Limited) notifies that the warrants for the interest in the £1,300,000 4½ per cent. first mortgage debenture stock have been posted.

The HALKIN MINING COMPANY (LIMITED) have declared a second interim dividend for the current year of 4s. per share, which was paid on September 29.

CORRESPONDENCE.

We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

THE STRUCTURE OF THE PYRENEES.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—As a mining novelty and an illustration of spurious geology, the Lower Greensand phosphates of the Vallée d'Aspe, described in the *Bulletin des Services* of May and August, 1893, with elaborate sections and more elaborate palaeontology, as not merely "anthracitic coal" of the Carboniferous formation, but as of the particular sub-section called the Dinantien, is in all respects complete. A bed of something black having been shown to one erudite genius, and having been heard of by another, the official reports are crammed with sections exhibiting stratigraphical relations, and palaeontological details describing the fossils that might be supposed to be present if the black bed in question were really coal. To wait for an analysis from the excellent industrial laboratory at their disposal would have exposed the authors to the risk of losing the priority of which they might otherwise deprive those who had studied the ground. Unfortunately, it turns out that the supposed coal has the following composition:—

Water	10.32
Phosphate of lime	27.34
Potash	1.32
Silica and calcite	31.76
Animal black	29.26
	100.00

This mixture of phosphate and animal black appears to exist throughout the Lower Greensand of the Pyrenees, and, especially in portions admittedly Cretaceous, colours the rocks intensely black, in which case they have been found to contain phosphates together with abundant Aptien fossils, and are employed as manure even in cases where no analysis has been made. I have been consulted regarding their working in various localities. In the Vallée d'Aspe the same rocks contain a rich and regular bed of this stuff intercalated between beds of limestone. Anyone can obtain 100 tons of it at the price of 5 francs 75 cents by applying to M. Cazenave, 72, Place Bosquet, Pau. I mention this address because certain persons of social influence in Paris find it easier to flatly deny facts than to discuss them. Although the phosphate finds a ready sale, the means of cheap transport are only in preparation. The enemies of French geology and mining have been unable to prevent the work, since the concession depends on the parish and not on the dignitaries who have divided their time between the management of the Panama and the keeping idle of the 700 mines of France. Investment in controllable home industries is the bugbear of those responsible for the reverse.

The limestone which caps the Lower Greensand basis of the Vallée d'Aspe was described by me as Upper Cretaceous, and mapped as such in 1895 for the Geological Map of France of Caroz and Vasseur. It was promptly classed as Cambrian in the Official Map of 1890. It is now admitted to be what I represented it. The more slaty formation on which it rests, and which I had not ventured to meddle with, is still classed as Primary, because it is penetrated by porphyry and granite. It is in reality the Lower Cretaceous. Owing to its slaty character, its real stratification is commonly obscured by a cleavage, which abruptly ceases at the base of the over-lying limestone. The apparent unconformity thus produced is a mere illusion. Apparent faults are mere beds of iron and siliceous character, which occur everywhere near the bottom of the limestone. There is a perfectly distinct passage from the Conomanian limestone to the Lower Cretaceous slaty beds. Here the thickness of these latter is probably not inferior to that of above 6000 feet, which they clearly exhibit between Alsasua and Tolosa. Only after making absolutely certain that the contrary view is founded solely on obvious blunders do I put forward as certain and final a conclusion which reference to the maps and sections quoted will show to be alone sufficient to revolutionise the current geology of the Pyrenees. This conclusion, in view of the entire history of the points concerned, carries with it no less important lessons regarding the Alps and all other chains.

The Vallée d'Ossau, next to the Vallée d'Aspe, was cited in my letters of last year in your pages as affording a crucial example of the impossibility of recent Alpine geology. The astounding problem of a complete inversion of a main Pyrenean mass turns out to be entirely constructed by the hasty and worthless field work, of which I have given sufficient specimens. There is simply no problem, but a series of copied and re-copied blunders, inspired by the same sentiment which produced the mapping of my Upper Cretaceous as Cambrian. Since 1883, when I presented before the Société des Sciences et Arts of Pau, a section at the 80,000th from Pau to the Pic du Midi, I have insisted that the limestone of Eaux Bonnes and the Pic du Gor is entirely Cretaceous. Caricatures of my sections and vehement denials of my facts will shortly cease, but as a typical example of common blunders the subject is instructive.

In the Vallée d'Aspe a considerable thickness of the rocks, which insensibly pass up into the Conomanian (Upper Cretaceous), resemble the Griotte, or Campan marble, which elsewhere has been classed as Devonian. Hastily trusting to this superficial analogy, geologists have overlooked the fact that the peculiar texture of this marble is very common in the undoubted Cretaceous of Eaux Chaudes, and at Miagebat is associated with clearly determinable Cretaceous fossils. This marble of Miagebat is the unquestionable continuation of the supposedly Devonian Griotte of the Vallée d'Aspe. In place of an argument for the Devonian age of the latter, this peculiar texture is hence a reason for admitting their Cretaceous age, the marble of Campan, Devonian or not, being far away, and all neighbouring rocks presenting this texture being Cretaceous. The black shales containing *Fucoides* and fragments of reeds, hastily classed as Carboniferous, are palaeontologically worthless, and perfectly represent similar Cretaceous rocks of the neighbourhood. As regards the fossils elaborately defined and quoted as Devonian in the Cretaceous amygdaloidal marble of the Vallée d'Aspe, I need only refer to a fact which I have in vain insisted on for many years. In the Pyrenees, and probably in all mountain chains, there commonly appear in the Cretaceous formation singularly rich accumulations of fossils, which are simply conglomerates whose pebbles mainly consist of the hard parts of older limestones, these hard parts being due to the presence of a fossil. Eminent specialists have assisted me in proving that Jurassic and Carboniferous species are thus abundantly present in the Upper Cretaceous and Lower Cretaceous of the Pyrenees. Rational discussion on the part of my adversaries would have thus saved them from enormous blunders for which they have no excuse. In

the Vallée d'Aspe I have collected hundreds of Devonian and Carboniferous fossils thus accumulated in the Miagebat marble of the base of the Upper Cretaceous, especially beside the copper mine of Sobaton, on the frontier to the south of Lhers. The irregular accumulations of these fossils appear to recur throughout the Lower Cretaceous, and to be only occasionally accompanied by Cretaceous species. The presence of such fossil conglomerates is the chief palaeontological fact of the Pyrenees. The Griotte of Campan appears to be itself a fossil conglomerate of Cretaceous formation occurring in the heart of the red breccia of Frochet d'Aure, which is situated above the Aptien fauna of Rebouc, mentioned in my last letters, and is hence not Permian, but the continuation of the Cretaceous breccias of Miramont and Esterencuby. The marble of Surrencolin and the statuary marble of Geten are higher in the Cretaceous series. The latter was already classed by me in the Conomanian in 1886, and has since been described as Upper Devonian, Carboniferous, &c. In a word, except to mere collectors of fossils and copyists of German names, the fossils of the Vallée d'Aspe and of the other localities in question are confirmatory of the Cretaceous age of the rocks erroneously classed as Primary. Geology, like every serious science, cannot be vamped at random.

With these fossil conglomerates of the Cretaceous, the volcanic phenomena of the Pyrenees are intimately associated. From Pau the most conspicuous feature of the range is the lofty pillar of the Pic du Midi d'Ossau. Behind that peak, on the summit of the Col de Peyrelus, a wondrous grand landscape may be witnessed. To north and south rise gigantic pillars shooting up from the extreme summit of the Pyrenees. These pillars are the denuded necks of volcanoes, that in Cretaceous times formed the crest of the chain. They are the Chimborazo and Cotopaxi of a Cretaceous Andes. Their roots sink in vast sheets of porphyry between the Cretaceous beds. Numerous impregnations of copper, lead, manganese, &c., have been worked at the contact of these rocks. Along the whole western half of the Pyrenees these porphyries, passing insensibly into ophite and Chertolite, are associated with red breccias, red marls, and fossil conglomerates, undoubtedly Cretaceous by the fossils I have found in them, but frequently holding blocks crammed with Devonian or Carboniferous species. These detritic beds have been classed, as undoubtedly Triassic by the same geologist who has committed the analogous blunders already described. From St. Jean Pied de Port to the Vallée d'Aure these red rocks are classed as Permian, Carboniferous, Trias, Devonian, Silurian, and Cambrian in the Official Map of 1890. They are singularly analogous to the *Brèche du Chablais* of the Alps, to which over 200 pages and 50 sections have been recently devoted in the *Bulletin des Services*. The author attains the conclusion that the Breche has walked across the Alps from Italy to deposit itself upside down on the Swiss slope. In working out the geology of the Pyrenean analogous breccia, I could have easily maintained similar paradoxes had I not regarded them as mere proofs that my field work required the revision and completion which has led me to the simpler truth.

—Yours faithfully,
Eaux Chaudes, September 23.
P. W. STUART-MENTZATH.

ENGLISH AND FOREIGN MINING EXPERTS.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Are English mining schools and English methods of metallurgy behind those of Germany and America? In one point certainly these countries can claim some priority—they afford students better opportunities for acquiring practical knowledge. The young Englishman cannot obtain in his own country actual experience in the mining of the precious metals, nor in the methods that apply to erecting and working mining plant in countries where the conditions are totally different from those of this land. In America practical experience in various forms of mining is more easily acquired, and in Germany many of the mining schools are specially located with a view to provide the students with a wide range of practical knowledge. The School of Clausthal, in the Hartz, for instance, is surrounded by mineral mountains. Within a circle of 3 miles are the most important lead, silver, and copper mines, and the smelting works of the Upper Hartz. The State works the mines and supports the school, which aims at giving such a scientific technical training as will fit the students to take charge of mines and smelting works of all kinds and sizes.

It is difficult to provide similar facilities in England, but as the fees in the German schools are moderate, it is a pity that English students do not complete part of their course on the Continent. Apart, however, from this special feature of practical knowledge—and I speak with considerable personal experience of German teaching—I should not feel inclined to admit a superiority of theoretical knowledge in either German or American mining students. We have had some illustrations of mining prophecies based on German geological theories. The fact is, no man is a prophet among his own countrymen, and the present fashion is to seek the gift among foreigners. There is also a very mistaken and very regrettable tendency to depreciate the value of sound theoretical knowledge in the mining field, and to place work in the hands of men who but for their possession of a little practical knowledge—easily acquired by men well grounded in theory, and easily misapplied when theory is wanting—are in no wise superior to the Englishman. Perhaps I ought to make one exception. With an experience that has extended over a considerable portion of the world, I fear I must own that Germans are possibly more plodding, methodical, and steady than the run of our own countrymen.—I am, Sir, yours faithfully,
C. C. LONGBRIDGE,
Member of the Federated Institution of Mining Engineers.

RELATION OF GOLD REEFS TO PLACERS?

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Under the above heading, a letter appeared in your issue of August 8, written from Central Africa, and subscribed "Yeller One," which I have read with much interest. "Yeller One" quotes the conditions under which placers occur in North Carolina, U.S.A.; but apparently does not place much belief in any connection between the quartz veins or stringers and the so-called placer deposits.

Having had a somewhat extended experience in the gold fields of the Southern States of America, I have based a belief in a connection between the veins and the placers upon the ground that on four properties of large extent—thoroughly practical prospecting failed to produce any traces of the yellow metal beyond or behind the line of veins, and in two separate gulches on the same property several of the small stringer veins, when uncovered by means of hydraulic, for a limited length, and to a shallow depth were composed of almost half gold and half quartz, the gold in the quartz and that from the gravels being almost identical. On other properties in those States, of which I have an intimate knowledge, similar conditions exist. Hence, I suppose the generally accepted theory that quartz veins have been the original source of the gold in the North Carolina and southern placers. It may occur to some of your readers the conditions under which the quartz and gravel are

found in North Georgia. There the two are so intimately associated that the more important mines are equipped with a combination hydraulic and milling plant, the loosened material being washed in the usual way, while the quartz, &c., is saved and sluiced into the mill house and crushed by stamps.

Of British Guiana I have no practical knowledge, but from conversations with mining men who have been there, and from general mining literature, I should judge the conditions are similar to those of the Southern States.

Like "Yeller One," I am looking for light in a field where there is apparently greater space for speculation as to the origin or source of the gold. I am at present working a placer mine in British Columbia that has been producing gold for over 30 years, and which will continue to do so for an indefinite period. The deposit is of great extent, and is hemmed in on three sides by spurs of the Rocky Mountains. In examining the country I have been unable to arrive at any conclusion as to a possible inlet for such an immense body of gold-bearing gravel. The gold is mostly "flakey," and in a sample of several pounds recently sent to London in its native state, only a few specimens were observed containing signs of quartz, and all of it had evidently either travelled or been subjected to great pressure, with one exception, this being a small piece of "sharp" gold with angular quartz attached.

No purely gold-bearing veins are as yet known to exist in the immediate vicinity, although a sample of quartz showing visible fine gold was brought to me the other day. This was from a prospect about 3000 feet, vertical, above us, and stated to be from a point 40 feet below surface, the prospect having been what is termed a "blind lead."

Widely apart, as are the points from which these letters reach you, "Yeller One" and the writer are apparently both after the same light. I may say, however, that should the theory, that the placer gold of this country emanated from veins, ever reach practical recognition, these hills will be honeycombed with holes of every conceivable description, as veins, to have fed such placer deposits as exist in British Columbia, must have been rich down to breaking off point, and would, doubtless, be still unexhausted. I can only suppose that time will bring the desired knowledge.—I am, Sir, your obedient servant,

Oxo.

Wild Horse Creek, British Columbia, September 1.

GOLD MINING IN BRITISH COLUMBIA.

THE TRAIL CREEK MINING DISTRICT.

(Continued from page 1220.)

Description of Mining Claims.

A DESCRIPTION of all the chief mines and many of the most promising prospects is now appended. In respect to titles, a Crown grant is the final deed from the Crown, granted on the completion of \$500 worth of work, while a claim held as a location requires that its owners each have a free miner's licence, and do \$100 worth of work per year, or pay \$100 into the provincial treasury. Many other properties than these it has been possible to examine in a limited time are being actively prospected, and will be inspected and reported upon another time. The properties first described will be those lying on the slopes of Red Mountain, Monte Christo Mountain, and Columbia-Kootenay Mountain.

Le Roi.

Area about 21 acres. Title, Crown grant location, on a hill rising on the south-east slope of Red Mountain and 4 mile north-west from Roseland. The Le Roi Gold Mining Company, of Spokane, President, W. W. Turner; general manager, George Turner; assistant manager, W. J. Harris; secretary, E. Williams; is capitalised for \$2,500,000 in 500,000 shares at \$5 each, and owns the Le Roi, the Black Bear and the small fractional claim, the Ivanhoe, or about 72 acres in all.

On this claim the large surface exposure, 6 to 14 feet wide, of the rusty red iron-stained rock, or the typical iron cap, that on fracture proved to be the covering of a large body of sulphides, mostly pyrrhotite, with some chalcocopyrite, could be easily seen for 200 to 300 feet in a north-easterly by south-westerly direction, when at the west end of this ore shute the vein seems to branch into two or even three smaller veins that diverge, the courses and continuance of which it is believed can be traced for some distance westward. At a point about 300 feet west of its east end line the shaft was begun and sunk along the upper part of this body of sulphides on a slope of about 45° to the north, which slope or dip after 60 feet began to pitch steeper until from the 350 feet level to the bottom, now about 500 feet deep, it has become nearly vertical. More or less ore was found all the way down, but below the 150 feet work this big ore shute began to widen out. When the underground workings were examined (July) the shaft, 8 by 12 feet, and 50 feet below the 450 feet level, was all in first-class ore, or the best ore yet found on this property. On the 450 feet level a very wide slope with all ore underneath was being worked up towards the 350 feet level, the width of the ore being the greatest at the west end, or nearly 35 feet, when it is cut off abruptly by a fault that extends up through the workings to the surface and dips easterly towards the shaft at an angle of 65° to 80°. Going east from the shaft this slope averages nearly 25 feet in width, when at a distance of 172 feet from the above-mentioned fault in the west end, the ore shute, now 20 feet wide, is cut off by another fault that crosses diagonally and nearly vertically, a fault that has also been encountered in all the workings above. This 450 feet level has not yet been extended beyond the west fault, but it has been through the east fault, showing a breast of nearly 12 feet of shipping ore, although this may not be the continuation of the large shute, further work being necessary to determine this. In the floor of this level, right in the ore shute, a 300 feet hole is being sunk along the pitch of the vein, with the Sullivan electric diamond drill, which is doing very satisfactory work, and has been of great service in prospecting other parts of the mine in the search for and discovery of the faulted parts of the ore shute, and also of large bodies of low grade, but shipping ore, back both in the hanging and also the footwall sides of the main ore shute. Above this level the ore has been stoped for two floors, or 16 to 20 feet, and in the roof is seen 25 to 30 feet of ore, of which 13 to 14 feet is stated to be of the first-class grade, much of it being massive pyrrhotite and copper pyrites.

Coming up to the 350 feet level, the slope is found to be on an average 25 feet wide for nearly 170 feet, or between the two faults, while a drill hole in the hanging has shown that there is still 20 feet more of mixed but good grade ore. The influence of, or rather the displacement by the two faults is again evident, but on the east side after drifting 30 feet beyond the line of work, three drill holes, horizontal, were put in, one into the footwall showing, after passing through 20 feet of barren rock, 26 feet of low grade but probably pay ore, while another straight ahead, 40 feet beyond what has been shown to be another fault plane, ran into a splendid body of ore in which a chamber over 20 feet wide has been made, in which further work was suspended until the ground was caught up with square sets. In the west end of this level near the fault, the slope is 12 feet wide of good ore with 10 feet of mixed ore in the hanging, and 5 feet in the foot. Beyond the fault considerable drifting and prospecting with the diamond drill has been done, with as yet fairly good results.

On the 300 feet level, although a wide slope was made in good ore, a large amount of second class ore is now being mined, as the system of timbering is advanced, and much ore of this character yet remains up through the upper works, all of which will be mined. All ore now brought to the surface for 80 to 100 tons daily, is

sorted into two classes—i.e., the first class or nearly pure sulphides, and the second class or the mixed diorite and sulphides that comprises 10 to 15 per cent. of the whole mass. Much of the first class ore is being shipped in wagons to Northport, crossing the Columbia River by ferry, and then to the smelters, while the tramway is taking an increased amount daily to the Trail smelter, although all ore bins are blocked up and two large piles of nearly 10,000 tons, averaging, it is claimed by the company, \$25 to \$35 in value, are awaiting shipment.

When the mine is fully equipped and prepared for exploitation in the most systematic manner, it will then be in a position to rapidly extend sinking operations, development levels, and the breaking and hoisting of much more ore per day, and besides the high grade ore, the large reserves known to exist, of ore averaging \$15 to \$20 in gold will be available. Extensive improvements are now in progress. (a) A new shaft of two compartments, each 4 by 5 feet in the clear, following down on the main trend of the ore body, will soon be completed from a point on the surface about 65 feet east of the present working shaft down to the 450 feet level, the sinking of which has been much retarded by the delay in getting the necessary squared timber, 8 by 8 inches for the upper part and 10 by 10 inches for the lower. A new hoisting plant is ordered that will consist of a 164 horse power direct connected hoister, with two independent 5 feet drums, raising two skips of 2 tons each capacity. This machinery will come from the Jencks Machine Company, Sherbrooke, Quebec. The boilers now in use, one 110 horse power, the other 90 horse power, will be utilised. (b) At the mouth of the Black Bear tunnel, running in from near the south-west corner of the claim, on a vein thought to be one of the branches of the main vein, to connect in 700 feet with the present workings at a point above the 350 feet level, there is being installed a large 40 drill air compressor, made by the Rand Drill Company, Sherbrooke, Quebec, with three 125 horse power steel boilers, by which very ample power will be got for mining and pumping purposes. The cost of this new plant will be from \$40,000 to \$50,000. The present plant consists of a seven drill Ingersoll-Sargeant compressor, a Ledgerwood hoist, an Edison dynamo for lighting the mine and operating the diamond drill, six Ingersoll-Sargeant rock drills and three Little Giant Rand drills, a Cameron station pump, duty 640 gallons per minute against a 450 foot head, and a Knowles sinking pump, although but comparatively little water comes in this mine. On the surface, kept in good order, are the hotel and boarding houses, offices and laboratories, shaft house and ore bins.

Mr. John Moynaham, superintendent, who has had long experience in the Comstock Mines, Nevada, and elsewhere, as soon as the above improvements are completed, will have the mine in good condition and the work laid out to give best results. Although the ground is strong, still all the slopes are being heavily timbered with square sets that will be kept close up to the face of work, and extended right up through all the old workings for greater safety and for greater convenience in working out the ore remaining. The new shaft will give good ventilation, though now the 450 feet level is kept very hot by the steam pipes to the pumps. Over 100 men are now employed.

On examining the mine smooth walls may be seen following approximately the trend of the ore shute, giving the impression that a well-defined foot or hanging wall was there, but on breaking into these walls the ore may be still found. However, in several places it was noticed that the best grade ore terminated along such a wall, or, in reality, a tight crevice, usually with calcite, pyrrhotite, and chalcocopyrite, arranged with more or less of a banded structure parallel to it, while the ore became of a more mixed character away from it. Again, this line of fracture, with a wide band of calcite, may pass through the centre of the high grade ore which gradually becomes of a lower grade on either side. The amount of displacement along the two main faults has not yet been determined, but work done indicates that it is not at all great. Lesser planes of fracture with varying strikes and dips occur all through the mine, as is seen elsewhere, and often, as along the main fault planes, there is a gouge or crushed rock matter which was not seen along those planes parallel with the ore bodies against which the ore was found concentrated and closely attached. In the mixed ore, the sulphides are segregated along small cracks or seams, and although they often form an integral part of the mass of diorite, close examination might betray often the existence of extremely narrow channels through which the sulphide-bearing solutions gained entrance if these ore bodies were thus formed. Again the calcite is found not only along the main planes, but more or less through the mass of rock, and crevices are often filled with it. Masses of calcite and sulphide with some quartz are segregated in greater or less amount irregularly through the ore-bearing diorite.

The supply of wood and water is nil, the water supply being pumped up from the creek in the Centre Star gulch, but a small box flume is being put in to bring water about 2½ miles from near the Jumbo Mine. Means of transport are now excellent, the tramway running to the ore bins, while the Red Mountain railroad will pass in a very convenient location.

War Eagle, Iron Mask, Virginia, and Poorman.

Although each of these claims is the property of a distinct and separate company, they are all under one management, Mr. F. E. Lucas, Spokane, being secretary, and Mr. James Clark, Roseland, superintendent. All these claims have been Crown granted, and lie along the north side lines of the Centre Star and Idaho. The War Eagle Gold Mining Company is stocked for 500,000 shares at \$1 each; the Iron Mask for 500,000, at \$1; the Virginia for 500,000, at \$1; and the Poorman at 500,000, at \$1.

The War Eagle, Iron Mask, and Virginia are being worked by the use of compressed air, the plant consisting of a 20 drill Rand air compressor and two 100 horse-power boilers, being located by the creek in Centre Star gulch, and on the line between the Iron Mask and Virginia, and the air carried in pipes to the points of working.

On the War Eagle the vein runs nearly east and west, dips north 65°, and passes on the east into the Centre Star claim. In the first workings shaft No. 1 was sunk over 70 feet in a shute of low grade ore that assayed from \$12 to \$16 in gold, but about 300 feet west was found, while the claim was under bond to Mr. P. Clark, a splendid ore shute of high grade ore that averaged over 2½ ounces in gold from the surface, and in which the slope at the surface, extending down to tunnel No. 1, is 120 feet long and 8 to 12 feet wide, where the ore before being mined was clean sulphides, or pyrrhotite and chalcocopyrite. At the west end of this shute the ore becomes scattered through the diorite, and a fault, strike north and south and dips about 60° west, has apparently dislocated the vein about 45 to 50 feet to the south, beyond which the ore was of a lower grade and the slope at the surface was 35 feet long and about 5 feet wide. Tunnel No. 2, 900 feet long, passed through these shutes, No. 1 being the ore followed down by No. 1 shaft, and extending with an average width of 3½ feet for 80 feet. Shute No. 2 was 100 feet long and was mined out to the surface in the large slope described above, but in the floor the ore, 2 to 4½ feet wide, remains untouched. Shute No. 3 was 40 feet long and worked out to the surface, leaving 3 to 4 feet of ore still beneath.

Tunnel No. 2 is 126 feet, vertically, below tunnel No. 1, 1100 feet long, and near its mouth is a shaft sunk 35 feet in an ore shute of low but good grade, which follows the tunnel for 160 feet along the floor as if it were the apex of another ore shute, for shute No. 1, in tunnel No. 1, does not appear in tunnel No. 2, but shutes Nos. 2 and 3 appear to come together between the two tunnels, for in the lower tunnel is found, corresponding to the position of the two above, one shute of high grade ore, much of which, taken out in running the tunnel, had an average gross value of \$57.60 per ton, 310 feet long and from 2 and 3 feet up to 12 and 14 feet wide of solid ore, which, as yet, has been untouched except (a) where a station is being cut for a hoisting plant for a shaft to be sunk from the tunnel level at a point where this shute is widest; (b) and in an upraise to tunnel No. 1 which upraise was in ore for 80 or 90 feet, when it passed through the barren diorite that on that level separates Nos. 2 and 3 shutes.

Faults have been found all through these workings that have

given considerable trouble in tracing out the ore shutes, and evidently the same fault that appears at the surface cut off the ore shute in the lower tunnel, where the ore is 4 to 5 feet wide. Not much more development work will be needed to clearly define the courses of these ore shutes, and to explain the nature and extent of the slips.

On the Iron Mask shaft No. 1 was started on a narrow crevice, apparently the continuation of the Josie vein, that went down vertically for 20 feet, when it began to widen out until the shaft was nearly all in a fine high grade ore that averaged 2-3 ounces gold down for 100 feet, when 50 feet of drifting was done. Further work was suspended until the main working tunnel that is being driven in from Centre Star gulch, starting where a read cutting laid down the top of a shute of ore, again of first-class grade. The tunnel was for nearly 120 feet through a mixed ore, where a slip was encountered, beyond which the tunnel was then pushed straight ahead for No. 1 shaft, after connecting with which it will turn to the right and run under tunnel No. 2, War Eagle, at a depth vertical of 250 feet. At the mouth of this tunnel, shaft No. 2, with two compartments, is being sunk down on the dip 70° north, with two compartments erected and a galloway frame, and a hoist and pumps operated with compressed air will soon be at work.

The Virginia is being developed by a tunnel, then 60 feet long, running to tap an ore body exposed in a small shaft higher up. The Poorman fraction is on the continuation of the Josie vein, and a tunnel is now being pushed forward, it being connected with a 92 feet shaft, and some ore is being taken out.

On the War Eagle ore bins have been erected, to which will be run a short spur from the tramway, but, in the meantime, ore is being hauled in wagons and loaded on the cars near the Le Roi, and then sent to the trail smelter. Number of men employed by Mr. J. Clark, 80.

(To be continued.)

THE GEOLOGY OF AFRICA IN RELATION TO ITS MINERAL WEALTH.

By WILCOT GIBSON.

BRIEF SKETCH OF AFRICAN GEOLOGY.

A GLANCE at a geological map of Africa shows that by the larger portion of the Continent as yet known is composed of metamorphic crystalline rocks. A broad sash of these rocks stretches from near Cape Verde on the west to Cape Guardafui on the east, and divides Africa geologically into a northern and southern portion. This zone of rocks runs to the north beneath the sands and Quaternary deposits of the Sahara Desert, and rises again southward into the high tableland of Central and South Central Africa, to emerge again from beneath the Palaeozoic deposits of the Cape around Cape Town. Unlike the same rocks in Europe generally, these crystalline rocks do not constitute the axes of the main mountain ranges from which newer deposits dip, but represent an old and widely denuded floor, on which newer rocks have been laid down—for the most part horizontally. These newer rocks are of marine origin in Northern Africa, and around the borders of the Continent, but are of lacustrine or terrestrial origin in the interior and in South Africa.

On the old platform of schistose rocks, and after it had suffered intense denudation, immense piles of volcanic material were poured out from fissures and large vents. The snow-capped Kilimanjaro (19,600 feet) and Kenia (18,370 feet) are among the finest examples of African mountains with this origin, while Mount Elgon, Mount Chibheragnani, and hosts of smaller volcanoes, stud the central plateaux of Eastern Africa.

The sedimentary rocks, deposited on the eroded edges of the crystalline rocks, are of various geological ages. In South Africa rocks from Silurian (Malmesbury beds) to Upper Karoo (Permo-Triassic) cover great areas, the strata of the Karoo formation spreading in vast horizontal sheets over Cape Colony, Natal, and the Transvaal. Sandstones and shales, apparently of Karoo age, also occur in the Congo basin, around Lake Tanganyika, Lake Bangweulu, and on the east coast of Africa, and again in Abyssinia, while the lower portion of the so-called Nubian sandstone may also, in part, be of Karoo age. In the central portions of the Sahara and in the Atlas, rocks of Silurian and Carboniferous age occur. Of newer rocks there is the great fringe of strata of Secondary and Tertiary age in North Africa and Egypt, while strata of the same ages border the East Coast, Madagascar, Natal, and run up the West Coast to join a border of rocks of the same ages coming round from Morocco.

Besides the sedimentary rocks a large portion of the Continent is occupied by rocks of igneous origin. These occur either as vast sheets of lava, as in South Africa and Abyssinia, or as great piles of volcanic material, as in East Central Africa. The sedimentary rocks of all ages, as well as the subjacent metamorphic rocks, are pierced by innumerable dykes of nearly every kind of igneous rock, from extremely acid to ultra-basic in composition.

In describing the geology of Africa it is most convenient to commence with South Africa, as here the relation of the strata to each other is best displayed, and has been more fully worked out, though certainly not to the extent that the mineral wealth they contain justifies. Sooner or later a mineral survey of South Africa will have to be seriously undertaken, in order to arrive at some approximation as to the extent and distribution of the mineral-bearing districts. South Africa and this country would have everything to gain by a Government Geological Survey, as such a survey, being made independently of any personal interest, would tend to reassure the investing public, and convince it that the mineral wealth of South Africa is very great.

At present the credit of South Africa as a mineral-producing country is based on the output of gold and on reports made chiefly for a body of directors, where the main end is the flotation of a company. This survey is all the more important at the present time, when constantly-recurring political troubles also shake the confidence of the people of this country.

Metamorphic Rocks of South Africa.

It will be seen that the gneissic platform underlying the pre-Carboniferous and Silurian rocks of Cape Colony appears again around the little town of Vrededorp. The rolling country north of Johannesburg and the hills around Pretoria, Barberton, and in the Lydenburg district are also largely composed of gneissic and schistose rocks and quartzites. Further north gneissic and schists cover a large extent of country as far as the Zambezi River. There is little doubt that all these crystalline rocks of South Africa belong to the same metamorphic complex. They are the granites that figure in so many geological sketches of South Africa, being not infrequently, but quite erroneously, represented as the cause of the tilting of the sedimentary deposits overlying them.

The rocks composing the metamorphic complex chiefly consist of sheared basic igneous rocks of very varied types, being also crossed and recrossed by several systems of later dykes of both acid and basic varieties. In some localities in the Northern

* Abstract from a paper read before the Federal Institute of Mining Engineers.

Transvaal and in Rhodesia quartzites are developed on a large scale, and massive quartz veins are not uncommon, though it has not been made clear how much of the quartzites of the Northern Transvaal belong to the metamorphic series, and how much to the banket formation of the Rand. In places the quartzites and quartz veins are auriferous.

In several localities the crystalline schists are themselves auriferous, but it is in the territory of the Chartered Company, according to the reports of several competent observers, that they become richest in minerals. In Mashonaland, there are reported to be 42,000 square miles of gold-bearing country, the gold occurring in schistose rocks of igneous origin. Mr. A. R. Sawyer states that in Mashonaland the gold occurs in five belts in almost unbroken parallels for 400 miles. Pockets are said to occur, but shoots are not uncommon. In places the ore runs over 5 ounces over the plates.

The pre-historic workings in Mashonaland are considered, if taken at the low average yield of 10 dwts. per ton, to have produced gold to the value of £1,600,000. Crossing the metamorphic rocks are a series of dykes of diorite, which Mr. Alford has shown contain gold. It will be important to ascertain whether these gold-bearing igneous rocks are of Karoo, post-Karoo, or pre-Karoo age, and to find out if it be a definite set of dykes with a generous trend that is auriferous. So far as is yet known it is not common in the Transvaal for dykes newer than the metamorphic rocks to contain gold. On the Rand there has been found no connection between the richness in gold of the several conglomerate bands and their proximity to igneous masses or dykes. Silver, tin, copper, cobalt, and iron ore are also reported to occur in the metamorphic areas, though no one has yet made it clear whether these minerals occur in the metamorphic rocks themselves or in beds of later age folded in with them or only in connection with intruded masses of igneous rocks. In this and most other cases it should be borne in mind that the stratigraphical geology of South Africa is extremely complex, and that all observations with the conclusions drawn from them must be received cautiously.

Metamorphic Rocks of Central Africa.

North of the Zambesi River metamorphic rocks cover vast areas around Lake Nyassa, Lake Tanganyika, and the two Nyansas, besides forming a wide tract near the coast, called the Nyika, which divides the interior of East Africa from the coast. From what the author saw of these rocks between Mombasa and Uganda, and from specimens from Tanganyika and other portions of Central Africa, the metamorphic rocks north of the Zambesi River appear to be generally of a more acid type than those of South Africa, though, as in South Africa, they are pierced by numerous dykes of acid and basic varieties. The method of travelling in East Africa by means of large caravans, in the years 1891 and 1892, did not allow much time for prospecting, nor could the caravan be delayed on the march to enable one to prospect. A little panning in the evenings, and a hunt round was all that could be attempted. The author does not, therefore, feel in a position to form any opinion as to the mineral wealth of East Africa. The absence of minerals in the metamorphic rocks of East Africa cannot be definitely stated till a closer inspection of the ground has been undertaken, a feat impossible till the Uganda railway is completed. At present no minerals have been yielded by the metamorphic rocks of Central Africa north of the Zambesi River, and the natives do not possess any knowledge of the occurrence of gold in East Africa. In the Bura hills, and at Kenani in East Africa, crystalline limestones form part of the metamorphic series, and will, no doubt, be found to be a useful source of lime.

Metamorphic Rocks of North Africa.

Gold is reported from Abyssinia and from the upper reaches of the Nile. The Somalis of the Jub River report the occurrence of the precious metal. In all these cases the author thinks that the gold will ultimately be traced to the crystalline rocks. Further north, in the Ebnai and Abyssinia, the crystalline rocks occur. Here there are stated to be two series, with a great unconformity between them. It is the older set of rocks that appears to be metalliferous. Mr. Floyer has done much to develop and draw attention to the mineral resources of this part of Africa, wherein very ancient gold and emerald mines occur, as well as large quarries in ornamental stone.

Gold occurs in Morocco and along the chain of the Great Atlas. Indeed, this portion of Africa is known to be very rich in many kinds of minerals, some occurring in metamorphic rocks, others in rocks of sedimentary origin. Rocks of the metamorphic series crop out in many places in the Sahara, and the southern limit of these little-known regions is known to be bounded by crystalline rocks, from which rocks of palaeozoic age dip to the north. The author is not aware that much has hitherto been done to ascertain whether the junction of these two sets of rocks yields any minerals. The natives of Timbuctu and Sokoto have long used gold dust as a trade article, the source of which has not been made very clear.

Metamorphic Rocks of West Africa.

The metamorphic rocks of West Africa have not as yet yielded any minerals, except in Namaqualand and Damaraland; but it is an open question how much of the gold in the modern conglomerates and laterite of the West Coast is derived from the crystalline rocks, and how much from the palaeozoic rocks abutting against them, or whether the gold is entirely of geyser origin. It is thus seen that the metamorphic rocks of Africa show indications of containing many valuable and precious minerals. Our knowledge is very scanty, very incomplete, and frequently unreliable, nor is it safe to speculate widely on the few known and imperfect data at hand; but there is certainly a promise that the metamorphic rocks, which comprise so large an area of our African possessions, are not so barren of minerals as would appear at first sight.

The Banket.—The Banket formation of South Africa is assuming a very great commercial importance, much has been written about it, and many guesses as to its age and origin have been brought forward. The character of the formation is now so well known as to need little further description. It will only be necessary to draw attention to some points in the stratigraphy that have recently been described. One of the most important discoveries of late is that of a thick band of dolomitic limestone overlying the black reef series, and of an apparent unconformity of the black reef series of conglomerates to the main reef and its associated beds. The delimitation of this limestone is due to the researches of Dr. Molengraaf, Mr. Draper, and Mr. Struben. Messrs. Draper and Struben have been able to detect by means of this band of limestone the presence of some portion of the Witwatersrand formation in areas far removed from the typical locality of Johannesburg.

Mr. Struben, in a recent map, represents outcrops of the Banket formation over the entire continent south of the Zambesi. His descriptions, however, are so vague—and no attempt being made by him to separate the various sedimentary deposits of South Africa or to assign to the conglomerates any definite position, even within wide limits, in the sequence of South African strata—that his arguments cannot be followed. There is even a possibility of his having identified limestones of Cretaceous, Eocene, Carboniferous, and Devonian ages, with the dolomite associated with the auriferous sediments of the Transvaal.

Neither Mr. Draper, Mr. Struben, nor Dr. Molengraaf have grasped the amount of mechanical deformation that the Banket formation has suffered, nor has anyone yet made out the true succession or age of the Witwatersrand beds. Thus, the quartzites and shales north of Johannesburg are stated by Messrs. Draper and Struben to underlie the main reef series, and are used by these observers to trace the outcrop of the main reef where this is hidden beneath surface deposits. Dr. Molengraaf considers that there is an unconformity between the quartzites and shale group and the main reef series. The author of this paper considers that the junction is a faulted one, but does not profess to say what is the true relationship. The quartzites and shales may be either above or below the main reef, or merely bands occurring on many horizons in the banket formation. It is certainly not safe to argue that certain conglomerates outside the Rand area are portions of the main reef series, because they are underlain or overlain, according to the view of the particular observer, by certain quartzites and shales which appear similar to those that apparently underlie the main reef, near Johannesburg. In the present state of knowledge, it is impossible to state definitely what is the true sequence on the Rand. This will, perhaps, be possible when the several bands of quartzites, shales, and conglomerates are laid down on an accurate topographical map on a scale large enough to show the major divisions of the strata.

In 1893 the author of this paper stated his conviction that the strata on the Rand were thrust over each other, or at least along the northern margin of the Johannesburg gold field. He sees no reason for altering this opinion. Indeed, fresh evidence of the thrusting over each other of the various strata is met with each year.

The age of the Banket formation must also for the present be left an open question. It is certainly newer than the metamorphic series, but older than the upper portion of the Karoo. To any portion of the geological scale between these limits it can be assigned. In the Transvaal the Banket formation is the only sedimentary deposit between the Upper Karoo and the metamorphic rocks. Wherever the base of the series is seen, it is found to rest on the metamorphic rocks. In Cape Colony, several thick formations of known geological ages lie between the Karoo and the metamorphic rocks. To which of these formations the Rand beds belong has still to be ascertained. If the black reef series and the dolomite be unconformable to the main reef series, the discovery of specimens of Carboniferous fossils at Vereeniging shows no more than the age of the dolomite in which they occur. It is not safe to say that the Witwatersrand beds are of Lower Devonian age if there be this marked unconformity between the Banket formation and the dolomite.

It is also impossible, in the absence of fossils in the Witwatersrand beds, to correlate them with strata occurring so far off as the Cape, even though beds of somewhat the same lithological composition as the Banket formation occur in the Table Mountain sandstone series. The Banket formation crops out in the Potchefstroom and Klerksdorp districts, and in one or two localities in the Free State bordering on the Vaal River. In all these districts the strata are thrown into gentle folds. Around Vereeniging these folds are very sharp and shallow. North of Johannesburg some portion of the Banket series crops out and forms the Megaliesberg range of mountains. Mr. Struben also considers that there are broad outcrops of the formation in Matabeleland and Mashonaland, but his arguments are not conclusive.

In Zululand Messrs. Daulton and Paulson, in 1893, reported the occurrence of strata, similar to those of the Banket formation, on the Tussenbyo farm, on the British Zululand border. The strata lie at angles of 5° to 12°. There is said to be a sharp division between the sandstones and conglomerates. The hanging wall alone carries gold; pannings of 14 dwts. 10 grains have been obtained. These conglomerates and sandstones have been taken to be of the same age as the Rand deposits, but their identity with the Banket formation has yet to be proved. It must be remembered that in Cape Colony gold is found in strata of Karoo age, and as the Karoo formation also contains bands of conglomerate (Enon conglomerate) indistinguishable from those of the Rand, the age of the auriferous conglomerates of Zululand cannot be settled by petrological or mineralogical data.

Mr. Struben, in one of his sections, shows the auriferous conglomerates of Zululand conformable to the Karoo and coal-bearing strata. If this be correct, the Banket of Zululand and Natal cannot possibly be the same as that of the Rand, for in the Transvaal there is no doubt about the marked unconformity of the coal-bearing strata to the Witwatersrand conglomerates. In the Potchefstroom and Klerksdorp districts, also, the coal-bearing strata rest almost horizontally on the folded sandstones and conglomerates of the Rand formation. North of the Zambesi River no banket beds have as yet been detected anywhere in Africa. The Banket of the West Coast is of more recent origin.

ARE CORNISH EXPERTS WANTED ABROAD?

ANSWER TO A QUEER PROPOSITION.

Mr. W. Thomas, C.E. shows what becomes of our Mining Men.

(From the *Cornishman*.)

IS it a fact that Cornishmen are being ousted from prominent positions in the Transvaal and in Western Australia? Is it true that young Englishmen with the highest testimonials have the greatest difficulty in getting responsible positions, even under British companies, in Johannesburg? That is the contention of our contemporary, *The Mining Journal*, in the principal leader of its latest issue.

The assumption is that at Johannesburg the collage pedant was tried and found wanting; the Cornish "Captain" was scarcely an improvement. And our contemporary goes on to say:—"He understood mining practically enough, but it was only as it is understood in Cornwall. He would not deviate from the time-honoured usage of his native land, and he had, as a rule, only a smattering of the scientific knowledge which is essential to the development of a newly-discovered mining field. Moreover, he was apt to show a prejudice in the selection of subordinates and the purchase of machinery and stores, which also operated strongly against real economy. It is true that there were numerous exceptions to these 'rioters.' Some of the most successful mines on the Rand have been developed by consulting engineers who came straight from the English technical institutions, or by managers who had learnt everything they knew in Cornish tin mines. At the same time it is impossible to shut one's eyes to the fact that there has been, as a whole, a tendency in South Africa to supplant Englishmen as engineers and managers by Americans and Germans. At the present time the most brilliant advisory positions in both the Transvaal and Rhodesia are held by men whose training ground has been California, and the managerships are increasingly coming into the hands of their countrymen. A young Englishman with the highest testimonials, who goes out to Johannesburg, will find considerable difficulty in obtaining a responsible position at a mine of which the directorate is almost entirely English, and the

capital of which has been entirely obtained from England. In West Australia the same tendency is exhibiting itself with even greater force."

True, the comment that follows is not wholly complimentary to the honesty of the alleged dominant experts, and English companies are advised to find places for their countrymen of sufficient knowledge and ability. It can be proved, however, that the whole edifice, so far as Cornishmen are concerned, is built on a foundation of pure imagination; and no doubt our friend, *The Mining Journal*, will be glad to find it so, because the spirit of its leader is eminently patriotic and sympathetic.

Mr. W. Thomas, C.E., secretary of the Mining Association and Institute of Cornwall, and one of the instructors on the staff of the Camborne School of Mines, is well posted on the positions which Cornishmen have taken, or are taking, in the great mining camps of the world. I put the proposition before him, and he replied:—

"Cornishmen and Germans are certainly being employed in large numbers, but certainly not to the prejudice of the Cornishman. From the editorial remarks one would gather that the Cornish managers who were formerly considered fit for the post they held, are, like Othello, finding their occupations gone; and that the young men who go out of Cornwall with good qualifications have the greatest difficulty in getting good positions. Neither contention will hold water. The old experts are still in responsible positions, and as fast as we can turn out a good man from our schools, a good position is waiting for him. In fact, there has been such a drain upon Cornwall in this respect that the demand is far greater than the supply."

"I can illustrate that from my own experience during the last three days. I am asked to recommend a man to take charge of a foreign copper mine, and another to manage a foreign tin mine; and I am unable to suggest men for the positions. Within the last 48 hours I have received a letter from my own brother who is engaged by a foreign syndicate, and is travelling with a wealthy German on responsible business in New Zealand, with the object of purchasing good gold mining properties for a powerful syndicate in South Africa. Since April I have lost my two chief assistants. Mr. Pratt was sent for to take a good position in the Transvaal, and Mr. Sam Richards, his successor, is on his way to Western Australia to take a responsible post under the Menzies Company in Western Australia."

"Suppose you take some of the big centres and roughly indicate how Cornishmen are faring."

"Very well, but remember this is merely off-hand, from memory, and by no means exhaustive. Take South Africa. The Inspector of Mines at Kimberley is Captain Tom Quentrell, of Wendron. A former Government Inspector was Captain Frank Oats, of St. Just, who relinquished that post to become manager of the Kimberley diamond mines, and who introduced true mining for diamonds in South Africa in conjunction with Mr. Edward Jones, then manager of De Beers. Now, as you know, Mr. Oats is a director of De Beers, and one of the leading spirits of Cornish mining."

"The present Chairman of the Mine Managers' Association of South Africa is Mr. J. Harry Johns, of Camborne, who, like Mr. Oats, was a student at our mining classes. Mr. Johns is manager of the Ferreira Gold Mines, and possesses the highest qualifications. Captain William Rodda, who is said to have become manager of a mining property at Johannesburg at a salary of £3000 a year, came, it is true, from California, but he is a Cornishman, and a brother of Mr. Frederick Rodda, a well-known townsman at Penzance. Captain F. W. Bowden, of St. Day, is manager of a South African mine; Captains W. T. Pope and J. Pope, of Breage, are in similar positions; Captain Whitburn, of St. Day, is manager of the Henry Nourse Mine, and his assistant and manager of the cyanide works has been Mr. Dick Chappel, son of Canon Chappel, of Camborne, who has been taken from South Africa by an influential foreign syndicate to manage their property in Australia. Mr. William Barnett (nephew of Mr. A. K. Barnett, F.G.S. of Penzance), who was chemist and general assistant in a Johannesburg mine, is leaving Cornwall to take charge of a mine in Western Australia. Mr. Ernest Thomas, son of Captain Josiah Thomas, of Dolcoath, after being underground manager at the Worcester, has left to manage a mine in Western Australia. Captain James Gilbert, of St. Day, recently took up his duties as manager at Coolgardie. Mr. Nicholas Holman, a Camborne student, manages a property in Western Australia. Captain Hambly, of Wheal Agar, who was Government Inspector at Kimberley, superintends a mine in Western Australia; and the manager of one of the best gold mines in that colony is Captain M'room, of Truro, who has Mr. Marshall Lowry, of Camborne, as his engineer. To return for a moment to Africa, the manager of De Beers Diamond Mines is Mr. Nicholl, an Englishman, while the underground manager is Mr. Henry Paull, of St. Day, who was so conspicuous for his bravery in the great fire a few years ago."

"Not a bad list from memory, Mr. Thomas; try India."

"Captain Joseph Pryor, of Redruth, who recently left the Mysore, has gone out to superintend a mine in Brazil. Mr. Arthur Llewellyn, of Redruth, who is quite a young man, has one of the most responsible positions on the Mysore fields. Captain James Rowe, of Camborne, manages the Champion Reef Gold Mine. Captain Tom Richards, of Tavistock, superintends the Nandydroog and Blaghat Mysore. Mr. Hambly, of Hayle, has an excellent post as mining engineer there. Captain John Gilbert, of Penryn-road, Camborne, who retired a few years ago, was manager of the Mysore, and his successor is Captain T. Hancock. Captain Martin, of St. Day and Truro, has either retired or is still manager of a Mysore gold mine."

"Try the United States—the home of these smart Yankees who are ousting us."

"Captain Tom Couch, of Batte City, Montana, manages one of the richest silver and copper mines in the United States, while Captain Prideaux, Captain Josiah Gilbert, Captain Hall, and others, have been, or are still, holding prominent positions as managers or assistants. It was practically the word of Captain Josiah Thomas, of Dolcoath, that sealed the doom of the Black Hills tin mines, after his inspection in Dakota. Mr. George Carter, of Truro, and other Cornishmen have left their mark on Californian mines, and Grass Valley is a Cornish community. Colorado has Cornishmen as well known as Mr. Richard Pearce, of Denver, formerly lecturer under the Mining Institute of Cornwall. The Lakes copper district is really a Cornish colony, and Captain Daniell, manager of the Tamarack, is a Cornishman, while other Cornishmen also take leading positions. In Mexico we have such men as Captain Frank Rile and Captain W. R. Rile, of the Santa Gertrudis, Maravillas, and other mines; Mr. James Higgins, who has been managing cyanide patents in Sonora, Mexico; and Captain Arthur Thomas, mining expert and adviser of wealthy mineowners. If you take a trip to the Straits Settlements you will be welcomed by Captain Fred Rich, son of Captain W. Rich, of South Condarrow. If you skip across to Spain you will find that Captain W. Rich, jun., formerly secretary of the Mining Institute (who is home on a holiday), is manager of the Rio Tinto Copper Mines; that Captain S. open Whitburn, of St. Day, is mining adviser to Spanish syndicates; and that Captain W. R. Thomas has just returned to Portugal, where he is managing a mine. In the Cumberland district you would find another Cornish colony, for about the Whitehaven and Barrow-in-Furness district Cornishmen are numbered by the thousand, and Captain Tom Rich (brother of our Captain Rich, of Redruth) is manager of the Hudbarrow Mine."

"Then there are many in out-of-the-way spots. In South America Captain John Panberthy (cousin of Sir Henry Irving) manages the Frontino and Bolivia Silver Mine; and on the Gold Coast of Africa we have Captain W. J. Gilbert, of Camborne, Mr. Arthur Hocking (recently the assistant of Mr. Baringer, principal of the Camborne Mining and Science Schools), and Mr. T. A. Bryant, of Truro, are with Captain Bryant, prospecting in Portuguese territory north of the Canene River, in South West Africa; a brother of mine, and several other Camborne students, have gone out under the British South West Africa Company; and at the annual dinner of the Camborne Mining Students I gave quite a long list of Camborne

students' recent appointments other than those I have mentioned to you."

These I have by me, but surely they are unnecessary? In *The Mining Journal* reports I see the names of W. M. Vivian and T. G. Davey as Australian mine managers. These do not sound like Californian names. But Mr. Thomas made some further remarks:—

"If we were dealing with the future," said he, "I would say that any mine manager who lacks engineering skill is bound to be ousted within the next five or ten years by the mine manager, of whatever nationality, who has a thorough practical knowledge of mechanical engineering. A requirement of the age is that a modern mine manager must be a mechanical engineer. The best men of various nationalities have been bringing themselves in line in this respect, and Cornishmen have not as a class fallen behind. It is not true that in Cornwall students are grounded in all the details of geology and the metallurgy of the laboratory, while they are taught scarcely anything of the actual methods of existing mining fields." At Camborne they get the best possible scientific training, but our committee have been energetic in strengthening the practical section both of mechanics and mining. Mr. Keast, proprietor and publisher of *Leam's Engine Reporter*, has been placed in charge of special mechanical courses, and this week the committee are arranging to take the whole of South Conderrow Mine for the students who have hitherto had practical training in part of this mine. Other students have worked underground in other Cornish mines, and have taken trips to mines in Wales and on the Continent. If American firms of engineers are getting a share of the orders from foreign mines, are not the names of Messrs. Harvey and Co., Messrs. Holman Brothers, the Tuckermill Foundry Company, and Stephens and Son, to say nothing of Tangye Brothers (the eminent Cornishmen of Birmingham) well known in many foreign mining camps? The rapid extension of Messrs. Holman Brothers' works is due to orders from South Africa and other foreign fields, so Cornwall has no difficulty in keeping up her end of the plank. The London School of Mines, and the mining engineers of the North and Midlands, are of age and can answer for themselves how far the remarks of *The Mining Journal* apply to the counties beyond the Tamar."

As far as Cornishmen abroad are concerned it is evident they have no cause of complaint; and, if capitalists would only invest a little more capital in our tin mines, it will stimulate and encourage the Cornishmen at home.

WHITE HILLS, ARIZONA.

(BY OUR OWN CORRESPONDENT.)

DENVER, COLORADO, SEPTEMBER 16.

THE writer has just returned from a trip to the White Hills District, Mojave County, Arizona, which is reached by a wagon drive of 50 miles over the desert from Kingman, an important station on the Atlantic and Pacific Railroad, 1045 miles from Denver. Mojave County has an area of 12,000 square miles (that is, half as big again as the whole of Wales), a population of less than 2000, and a cultivated area of about 1000 acres, as it is strictly in the arid region.

In 1892 a Hopai Indian, visiting the hole from which his tribe for generations had obtained the red oxide of iron used to paint their faces, brought back with him a lump of rock, which he showed to a German miner near Kingman. The German offered the Indian \$200 to show him the place where he got it, which he did, taking him to what is now known as White Hills, then a remote part of the desert and quite unsuspected of being mineral-bearing. The German took samples, had them assayed at Kingman, and found, to his astonishment, the material showed over 1000 ounces of silver to the ton. It was not very safe at that time for a solitary man to locate in such a lonely district, as he was very liable not to be heard of again, although the Indians always blandly disclaimed any knowledge of the cause of such disappearance, so the German for safety took onto himself two partners, went with them to the place, paid the Indian 1s. per gallon for all the water he brought them from the nearest spring, 7 miles distant, using his pony as a pack animal, while they located a number of claims on the best ground. The news spread, scores of others flocked in, and among them some Denver men, who acquired by purchase a number of claims, organised a company, went to work mining in a more systematic manner, and built a 10 stamp mill, demonstrating that 90 per cent. of the value of the milling ore can be saved by the process of pan amalgamation.

Then came 1893, the closing of the Indian Mints, the repeal of the Sherman Act, the boycotting of silver, its consequent fall in price, and the wholesale shutting down of hundreds of silver mines from the British line to the Mexican frontier. White Hills, however, was one of the very few places that lived through the depression and continued producing, the method adopted being to lease portions of the ground to what are locally called "chloriders," who open up the mines, bring out all the ore from between the walls, sort it in the daylight, taking as their share the ore rich enough to ship to the smelters, on which they pay 20 or 25 per cent., and in some cases as high as 50 per cent. royalty, the owners getting as their share such royalty and all the milling ore, besides having their properties opened up free of cost. As it is 50 miles wagon haul to Kingman, the nearest railroad point, and thence 900 miles to the nearest smelter—viz., Pueblo, Colorado, it came to be recognised that ore running 100 ounces silver per ton and upwards would pay to send to the smelter, while ore running less than that, in order to pay, must be treated by the local mill.

The company and its members went on acquiring additional territory, picking up anything that came into the market until nearly all the mineral-bearing ground in the district, which is a little over 3 miles long and about a mile wide, was concentrated in two or three ownerships, the company being by far the largest owner. As time went on, the few men constituting the company found that financially they had got more mining property than they could well carry or handle properly, and the result was that a Denver Englishman got permission to offer in England a large interest in the company. He first went to London last winter, and submitted it to a professional firm, who, after full investigation, were willing to place the entire stock offered, but at an advance of 80 per cent. on the vendor's price, the firm to have such 80 per cent. for their trouble. This exorbitant offer was at once declined, and the agent went to Lancashire, where he laid the whole proposition before a wealthy and well-known business man, and a private syndicate of capitalists was formed to acquire the stock, subject to approval on investigation. Several of them personally visited the property, and themselves took samples of the ore from the mines, which they had tested by the official assays in London of the Bank of England—one sample of 2 cwt. 2 qrs. 7 lbs., showing 1 ounce 15 dwts. of gold and 1781 ounces 10 dwts. of silver per ton. Another sample of 85 lbs. showing 6 ounces 4 dwts. of gold and 1329 ounces 10 dwts. of silver per ton. A third sample showing 6 dwts. 12 grains of gold and 3343 ounces 10 dwts. of silver per ton, and so on. The first deal was, therefore, promptly consummated, followed by others, until at the present time, if the Lancashire men and their friends have not acquired practically the whole of the mineral-bearing ground, they have got a very large interest and may get the rest. The stock of the company is not listed on any exchange, nor is any of it for sale, as it has been acquired as a permanent investment.

The writer stayed at White Hills a week, thoroughly examining the properties, the whole district being gridironed at intervals by strong ledges or veins, averaging about 5 feet wide, boldly outcropping on the surface and running down into the earth. These veins, as shown by the assays quoted above, carry silver and some gold, but no appreciable quantity of lead, copper, or other mineral.

As instances, it may be stated that four of the leading ledges or veins show continuous lengths on the surface of 5000 feet,

3000 feet, and 2000 feet respectively. These particular veins have been opened up at various points by shafts, following the veins down 100 feet, 300 feet, 365 feet, 400 feet, and 500 feet respectively, besides numerous other shafts, and in every case at the bottom of the shafts the veins are still going down without diminution in width or value. From these shafts there are numerous levels, also all on the veins and between well-defined walls. In addition to the above there are numerous intervening veins, more or less opened up, showing the same uniformity of size and value.

As a rule, the richer the ore in silver and the greater the amount of gold also carried, but the most westerly claim of the group carries gold almost exclusively, so far as at present opened up, at the rate of over 2 ounces to the ton. Speaking generally, there are at least 30 tons of milling ore, ranging down to 10 ounces silver per ton, to every ton of shipping ore. It is difficult to form even an approximate estimate of the value of the ore now in sight, for the reason that any one body of ore blocked out, which may show nothing but milling ore on its exposed surface, may with a few feet of stoping disclose a considerable pocket of rich shipping ore. Merely as a milling proposition the vast bodies of ore now in sight can be mined, and with an enlarged milling capacity treated at a good margin of profit, but with the additional certainty, judging from past experience, of occasional or frequent pockets, more or less extensive, of rich smelting ore, the margin of profit is much increased. The fact that this very limited district is stated, on good authority, to have produced 1,250,000 ounces of silver, besides gold, since its first discovery in 1892, although not more than one-fortieth of the ground has yet been exploited, says much for its future possibilities.

The local water supply for a while was limited to hauling same from small springs or wells in a range of hills of conglomerate formation 7 miles distant, but the company some time ago fortunately struck water in one of the mines at 385 feet deep, which supply has increased with depth, until now at 500 feet deep, it is estimated at 10,000 gallons per day, chemically pure. All the other mines and all other parts of this particular mine are perfectly dry, and no timbering is necessary. The rock, also, is "single hand" ground, and contracts for drifting are readily taken at \$1 per ton, although the local rate of wages is \$3 per day for miners, \$3.50 for mechanics, and \$2.50 for labour.

The winters are very mild, the few snows rarely exceeding an inch in depth, or remaining more than a few hours, so that mining and shipping operations are never interrupted.

The local fuel supply consists of the trunks and limbs of the yucca palm, locally known as Joshua wood, which by contract is felled, cut in lengths, hauled, and delivered on the company's premises at \$2.50 per cord, one cord being sufficient to run a 25 horse power hoisting and pumping engine for 10 hours. There is an available supply of this fuel in the surrounding country calculated to last a long time. The early future, however, may see a branch line built, 50 miles long, connecting the mines with the Atlantic and Pacific Railroad, as there are no engineering difficulties in the way, thereby admitting of coal being laid down cheaper than Joshua wood.

The present situation is that the existing stamp mill has not the capacity to treat a tithe of the ore that could be taken out, and work is, therefore, practically limited to mere development, the ore thereby taken out keeping the present mill running to its full capacity. The erection of a large stamp mill, now contemplated, will justify a great increase of the present force (75 men), and result in an immense annual output of mineral.

If the Lancashire men who have invested in these properties will, in their management of them, adhere to the strict common sense and business principles which they know are absolutely necessary to make a cotton factory profitable, they will get very handsome returns on their investment.

THOMAS TONGE.

OUR SOUTH AFRICAN LETTER.

(FROM OUR OWN CORRESPONDENT.)

JOHANNESBURG, SEPTEMBER 5.

OF the several meetings of companies held during the week, one, that of the Hex River Exploration Company, has attracted the greatest attention of the public in general, and of Heidelberg claimholders in particular.

Lately a good deal of pegging has been going on round Hex River, and there was a good demand of claims there, but holders did not like to part with them, and asked such big prices that very few transactions took place.

It was known that the "Exploration" had very promising results from their operations, but this could not prove so far the value of the hundreds of claims adjoining that property. At any rate, the report of prospecting work done by the company justifies the good opinion of the adjoining claimholders about the value of their ground.

It is worth while extracting some interesting items from the manager's report on the operations ending August 15. I fully agree with Mr. S. Mottram, the Chairman, that the prospects of the Exploration are exceedingly bright.

On the Farm Hex River, where operations went on on a larger scale, the reef, which is dipping north at an average angle of about 35°, outcrops along the southern boundary, and has already been opened up for a length of 4100 feet.

I must add that of the whole property, consisting of 400 claims, only on Hex River, 341 claims are really reef claims, and, as such, the pick of the property.

A great advantage, and an important consideration to the working of this property, will be the possibility of utilising the Hex River Spruit, from which it is expected to obtain all the water required for further operations.

In the western section, the only one fully developed, three incline shafts have been sunk in the footwall. The depth reached is of 60, 210, 151 feet respectively. In the central shaft only the reef has been exposed. At a depth of 173 feet drives have been started east and west to connect with the other two shafts; they then ascertained the regularity and perfect definition of the reef.

It is interesting to note the fact already admitted and proved in the Heidelberg district that here, too, the grade of ore improves in depth. The exceptional value of the Hex River Exploration ground fully confirms this observation not only with reference to a richer ore, but the reef widens by further going down.

Samples taken from 3 to 5 feet down to a depth of 100 feet shows an average value of 9 dwts. 4 grains per ton of 2000 lbs., on a stoping width of 30 inches.

Samples taken from 100 to 150 feet showed an average of 19 dwts. per ton of 2000 lbs., on a stoping width of 30 inches; from 150 to 200 feet, the average on same width was 21 dwts.

I consider the work done on this property is one of the most important towards the development of the southern portion of the Heidelberg district, the real value of many a thousand claims lately pegged being an "incognita," whose solution we may not expect so soon; but if the coalition of so many small interests had to take place and to start jointly a pushing work of development on different portions of the district, then could be defined the general run of the so-called main reef, the formation of the many secondary reefs, which capriciously cross the country could be better studied, and the claimholders would not have to wait several years to know how they stand, and what they have really got.

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

ARMADALE.—The following cablegram has been received from Mr. Frank Nicolas, the company's consulting engineer:—"The 90 feet level is in 50 feet. Developments opening up as possible."

ALASKA TREADWELL.—Cablegram from Alaska reports the clean-up for the month of September as follows:—"Period since last return, 31 days; bullion shipped, \$59,354; ore milled, 22,250 tons; sulphurets treated, 378 tons; of bullion treated there came from sulphurets \$19,235. Gross expenses for period unable to state."

BRILLIANT BLOCK.—Cablegram from the head office in Charters Towers:—"Have crushed 2028 tons for a yield of 670 ounces of gold. The profit on the run is £300." The approximate value of this return is £3350.

BONNIE DUNDEE.—The following cablegram has been received from the managing director in Charters Towers:—"No. 31 Vertical shaft. The shaft has reached a depth of 1500 feet. The rock is becoming harder.—Workings on the Victory reef. The prospects are encouraging. I am starting to erect 200 tons."

BARIMA.—The London agent is in receipt of cable advice from Demerara, announcing the result of the September clean-up to be 730 ounces of gold from 780 tons crushed.

BURBANK GOLD.—The enclosed cable has been received from the mines:—"New discovery, prospects excellent, chains East Derby lode."

BURMA RUBY.—The result of the mining for the month of September was 28,000 loads washed, producing rubies valued at Rs. 58 000.

BAYLEY'S REWARD No. 1 SOUTH.—The following cable, dated the 29th inst., has been received by this company's London office from its head office at Melbourne:—"198 ounces, 70 tons."

CENTRAL CHILI COPPER.—The directors have received from their manager, at Panulillo, the following cable:—"Result of work for month of August: Mines produced 1340 tons; ores bought 1500 tons; ores smelted 3050 tons; regular production 337 tons. Net profit for month £900." Memo.—One new manager, Mr. Richards, arrived at Panulillo on August 10, and took over the management two days later.

CHAMPION EXTENDED AND HOME RULE.—The following cable has been received from Melbourne:—"Average sample of tailings gives 16 dwts. per ton, assay value of concentrates 17 ounces per ton. This refers to the 24 tons crushed on August 31, which yielded 75 ounces retorted gold, exclusive of tailings or concentrates."

GRAVEN'S CALEDONIA.—The following cablegram has been received, giving result of crushing, dated Charters Towers, September 28:—"126 tons, yielding 126 ounces gold."

COLUMBIAN HYDRAULIC.—Cablegram giving the result of run No. 200:—"We have cleaned up after a run of 43 days, during which time we have washed 900 hours. The gross return are £1950. The net profit is £1000."

COLUMBIA (Charters Towers).—The manager cables as follows:—"Depth of the shaft is 476 feet; rock has become much harder; we shall stop sinking in order to open up quartz reef which was struck at 328 feet."

CASSEL COAL.—A cablegram just received gives the output for the month of September as 31,500 tons.

EAGLEHAWK CONSOLIDATED.—The following cablegram has been received from the mine at Maldon:—"Have met with. The reef is very promising, but we have not yet met with any payable stone.—1 foot. Driving north on the line of the reef."

FORBES REEF.—A telegram has been received from the mines, stating that the result of the crushing for September was 97 ounces of gold.

GRAND CENTRAL.—The following cable information has been received:—"3000 tons milled in September, estimated production value, \$90,000 gold; expenses will not exceed \$37,000."

GREAT SOUTHERN TIN AND GOLD FIELDS.—Copy cable received from mining manager, dated Toora, Australia, September 28:—"Water race (4 miles) completed; head of water splendid; pipes ready October 1; work expected to be completed November 21." This date is later than anticipated by our engineers, no doubt in consequence of the enormous quantity of rock met with in cutting the 4 miles of race, and also the heavy extra work required to be done on the sides of steep hills, where in several places earth and rock had to be cut on the hill side 30 feet deep. Little now remains to be done, chiefly the placing in position of the water pipes (800 feet of 20 inch and 2500 feet of 11 inch), which are all made, and will, on October 1, be forwarded from Melbourne to the mine, together with the hydraulic nozzles, &c. It is believed that sluicing for revenue will actually commence on the date named in cable.

GREAT EASTERN COLLIERIES.—Cable dated October 1:—"The output of coal for the month of September was 21,000 tons."

GOLD ESTATES OF AUSTRALIA.—The following information has been received by cable from the manager:—"At an auction of a portion of the company's Perth building estate, 16 lots were sold at an average price of slightly over £200 per acre, leaving nearly 700 acres still unsold."

GREAT BOULDER PROPRIETARY.—Crushing returns for fortnight ending September 28:—"At company's own battery Great Boulder Mine (20 stamps) 720 tons of ore crushed, yielded 231 ounces.—Note. For economy it has been decided to discontinue crushing at the Leviathan battery."

GRIERSON'S.—The following telegram has been received from the manager:—"The present depth of the shaft is 281 feet. The lode looks exceedingly promising. Visible free gold. Sinking shaft as speedily as possible. Prospects are most encouraging."

GLENCAIRN MAIN REEF.—The Johannesburg Consolidated Investment Company announce receipt of a cable from the above company, stating that the consulting engineer, Mr. G. W. Starr, strongly recommends the removal of 50 of the 100 stamps, comprising the battery, from the Glencairn Mine to the Glencairn property. These stamps, together with the 50 stamp battery already on the Glencairn Mine, will constitute one large battery of 110 stamps on the latter site. This alteration is made with a view to economy in working expenses, and in order to facilitate the working of the whole property under one control. The board of directors, after careful consideration have agreed to adopt these recommendations as being in the best interests of the shareholders; this step will necessitate the suspension of battery operations for a short period. The mining development will be continued, so that by the time the battery is ready for resuming work the consulting engineer estimates that there will be 240,000 tons of ore ready for treatment. It will be borne in mind that 50 stamps will remain at the Glencairn Mine, so that the total crushing power will be

160 stamps, which will, it is anticipated, be maintained in full work from the time of re-starting.

GOLD REEFS OF WEST AFRICA.—The following cablegram has been received from Mr. Bridges, dated Axim, 26th inst.:—"Struck a good body of ore in adit shaft. Letter with full details follows by mail."

HANNAN'S BLOCK 45.—The following cable has been received by the Octagon Explorers from Mr. John Reid, C.E., resident director at Coolgardie:—"Block 45. Have driven 5 feet on lode since Gibson's report.—100 feet level, main shaft south. The width of the lode is 3 feet. The lode in face of drive is of a promising character, carrying pay streak of ore 20 inches wide, promising value 12 ounces per ton. The main shaft has been sunk to a depth of 167 feet."

HANNAN'S LODGE.—The following cablegram from Kalgoolie, dated September 27, has been received from the company's managers, Messrs. C. J. McCulloch and Co.:—"Crosscut on the 100 feet level 82 feet; ground continues to be unsettled. No. 3 shaft 91 feet. 81 feet have been met with eruptive rock in contact with lode materials. Regard it as most important. Connelly."

HALL MINES.—Results of the company's smelting operations during the four weeks from August 29 to September 26, during which the furnace was only 10 days in blast:—958 tons of ore were smelted, yielding 59 tons matte, containing (approximately) 27 tons copper, 12,255 ounces silver, traces gold. Note.—The furnace has been blown out for necessary substantial repairs and alterations, to provide for the winter season, and is expected to be blown in about October 5.

JERSEY LILY.—The directors have received the following cable from the manager:—"Have commenced erecting machinery. Expect to commence about October 5. Sinking shaft, also stopping."

JOHANNESBURG CONSOLIDATED INVESTMENT.—The following cable has been received in London:—"Amalgamation. At a meeting of shareholders Barnato Bank, Johannesburg Waterworks, Johannesburg Consolidated Investment Company, all resolutions passed unanimously according to the original agreement. All the meetings passed off very well, and a special vote of thanks was passed to B. I. Barnato."

KABONGA.—Cablegram just received states:—"Bore hole through 12 feet 6 inches. Bottom level going forward. The work is being vigorously pushed in every department."

LUCKY GUSS (Cripple Creek).—Manager writes, September 12:—"I have about 60 tons of ore at the samplers to be treated and paid for in a few days. I also have about 100 sacks of ore in the ore house that runs from 10 ounces to 50 ounces per ton (of 2000 lbs.), and more of the latter grade than the former. Am in good ore in the new vein. I sampled it yesterday, leaving out the rich streak, it is 5 feet wide, and showed values of \$28 per 2000 lbs., so I am in good shape this month."

LOMATIE LYDENBURG EXPLORATION.—Copy of a cable received from the manager, Mr. E. Howse:—"Assay of samples from Enid reef gives 13 dwts. per ton. Am sending samples to London. The vein has been proved for a length of 400 feet."

MCKENZIE.—Cable received from Mr. Frank Nicolas, the company's consulting engineer:—"Glenloth. Have cleaned up after crushing 101 tons of quartz, gross yield 31 dwts. per ton (166 ounces). Assay of tailings 16 dwts. per ton. This gives a return of 2 ounces 7 dwts. to the ton."

MONASTERY DIAMOND.—Cable received 1st inst. states:—"286 loads last week yielded 20 carats."

MOUNT HEPBURN.—The following cable has been received from the mine manager, Mr. E. W. Spain, dated September 28:—"North drive assays average 3 ounces 10 dwts. per ton. Can run out gold freely, samples taken indiscriminately. This lode averages 35 feet wide, and is 4500 feet long."

MOUNT USHER.—Cable received from manager at mine, dated September 26:—"Have struck rich ore body in the bottom level. The ore contains visible gold. Mine looks exceedingly well."

NEW QUEEN.—Cablegram, dated Charters Towers, September 28, states:—"Have drawn on you for £300. Shipped per steamship *Indis* 156 ounces (gold). Sunk straight shaft 81 feet during fortnight."

NORTH BOULDER.—The following cable has been received from the mine manager, dated October 2:—"400 ounces of gold from 200 tons crushed."

MYSOORE REEFS (Kangundry).—A telegram has been received from the mine, dated October 2, giving last month's return of gold as follows:—"256 tons of stone produced 128 ounces of gold."

NORTH BOULDER.—In a cable from the mine the manager states:—"Cleaning up next week."

PESTARENA UNITED.—Gold return for September: 501 tons of ore produced 742 ounces of gold, equal to 1 ounce 9 dwts. 10 grains per ton.

PAMBULA.—In continuation of the cable from their manager, dated 18th current, stating that he had struck a very rich body of ore in the north end, this company has received a further cable from him as follows:—"Am now taking out and bagging rich ore."

QUEENSLAND SMELTING.—The manager cables as follows:—"Have shipped Doré bars per s.s. *Duke of Argyll*, containing 22,000 ounces silver, and 920 ounces gold."

ST. JOHN DEL REY.—The following telegram has been received from Mr. Chalmers:—"Produce 10 days second division September, 10,750 oitavas, equal to 1239 ounces troy; value £4166; yield per ton 5.4 oitavas 62 ounces troy."

TIPPERARY (New Zealand).—Cablegram received from the manager, Mr. W. J. Stanford, dated Arrowtown, 28th inst.:—"Have struck a large orebody in the 7th level, carrying payable coarse gold. Expect to start milling on or about October 10."

TREASURY.—Cable received from head office, dated Johannesburg, September 28:—"Treasury has struck a new reef, presumably north reef fourth level. Width of reef 2 feet. Reef runs 1 ounce 6 dwts. to the ton. Will considerably increase reserve if permanent."

TASMANIA.—Cablegram to hand states:—"Have crushed for the month 3162 tons, yielding 3182 ounces."

VICTORIA GOLD MINING ASSOCIATION (Charters Towers).—The following cablegram has been received at the London office:—"286 tons crushed yielded 356 ounces gold."

VICTORY (Charters Towers).—Messrs. A. Durant and Co. the London agents, have received a cablegram from the head office in Sydney as follows:—"Crushed from No. 3 shaft 170 tons for a yield of 394 ounces of gold."

WAHAI SILVERTON EXTENDED.—The following cable has been received from the local board in New Zealand:—"670 tons crushed, 565 ounces, £1171. Last month's poor output attributable to accident; easily repaired."

WAHAI GRAND JUNCTION.—The manager cables October 2:—"Grand Junction engine shaft is down 486 feet. Wahai West Prospecting shaft drive 408 feet south. Water will be struck in large quantities. Every indication that lode will be struck within next few feet."

WESTERN AUSTRALIAN DEVELOPMENT CORPORATION.—Mr. Frank Nicolas, consulting engineer, cables as follows:—"Lorotay. Crushing result will probably be 22 dwts.

to the ton; assay of tailing, 17 dwts. to the ton. Reef proved to a depth of 100 feet."

WASSAU (Gold Coast).—A cablegram has been received advising a remittance of 364 ounces bullion for the first half of this month.

WESTERN AUSTRALIAN DEVELOPMENT CORPORATION.—Cablegram received from Mr. Frank Nicolas, the consulting engineer:—"Dorothy. 70 feet level. Have driven in upon the vein 40 feet south. Varies in width from 2 feet 6 inches to 4 feet. Assays average 35 dwts. per ton.—30 feet level. Have driven in upon the vein 40 feet; varies in width from 18 inches to 3 feet. Reef has an average assay value of 2 ounces per ton. North 12 feet; width of the vein is 3 feet. Working expenses should not exceed 12 dwts. per ton."

ZEEHAN-MONTANA.—The following cablegram has been received from Hobart, dated September 28:—"Have shipped 175 tons of silver-lead ore containing about 122 tons 10 dwts. of lead, and 17,500 ounces of silver."

MINING IN NEW ZEALAND.

MINES STATEMENT.

By the Hon. A. J. CADMAN, Minister of Mines.

(Continued from page 1221.)

Otago.

THE principal gold fields of Otago are Tuapeka, Clutha Valley, Manuhirika Valley, Mount Ida, and the Lake district, and although 35 years have passed since the discovery of gold in Otago, very little impression is made on the surface of the ground where alluvial mining has been carried on. Gold to the value of £20,643,176 has been obtained from the alluvial workings, and far more remains hidden from view; but it is not so easily obtained as in the early days, when the workings were confined to the shallow ground and creek beds. These creek beds formed gigantic ground sluices, requiring only to be cleaned up by manual labour. In the valley of the Clutha there are still plenty of ancient river beds having large deposits of gold-bearing gravels; these, however, being covered with a great depth of superincumbent material, require a large capital to work claims and make them remunerative ventures.

Tuapeka.

The most important work now being carried on in the neighbourhood of Tuapeka is at the Blue Spar. The workings here are in a hard cemented gravel requiring to be blasted and broken up by picks and hammers before it is sufficiently disintegrated to liberate the gold it contains. The present company which holds most of the cemented gravels at the Blue Spar has been working for many years with only a small amount of success. Notwithstanding this it has not only paid off the whole of its liabilities, which amounted to many thousands of pounds, but the company is now in a position to pay handsome dividends. Last year the profit was over £10,000. The same class of cemented gravels is found at Wetherstone's and Waitahuna; but this deposit has not been worked at these places on such a scale or in such a method as would be likely to give payable returns.

Clutha Valley.

This valley contains the richest deposit of auriferous drift in the colony. The river itself, being only an immense ground sluice, carries away all the light material, leaving the denser and heavier portions of the gravels, which now cover the bed of the valley. The gold obtained by the various dredges at work in the bed of the river, as well as by the different parties and companies which have claims in this valley, clearly demonstrates the immense wealth that lies buried therein. Gold is found in payable quantities in the bed of almost every river, creek, and stream which are tributaries of the Clutha. The same remarks apply to the Manuhirika Valley. Gold-bearing gravels cover the hills, terraces, and flats, only awaiting a systematic method of working to insure success. There is ample scope for the employment of capital in alluvial mining in these valleys, and with ordinary intelligence and judicious selection of properties many remunerative ventures can be taken up.

Lake District.

The large quantities of gold obtained from the bed of the Shotover River in the early days of the Otago gold fields proves the auriferous character of the country this river traverses, the river itself being nothing more than Nature's sluice box, carrying away all the material from the slips which have from time to time taken place from the mountain sides. The hills and mountains being composed of highly laminated schistose rocks, having gold intermixed, have become disintegrated by the action of the atmosphere and the weather releasing the particles of gold which have for ages been accumulating in the beds of all the different streams. Wherever a deposit of gravel is found overlying the schistose rocks it is generally auriferous, and will give fair returns by adopting the modern methods of working.

At present the object of capitalists seems principally to be the development of the quartz reefs, but I believe in the near future more attention will be devoted to the working of the numerous auriferous drifts in the Middle Island to which I have referred by the construction of dams for conserving water and water races for sluicing at higher elevations than has hitherto been the case. Alluvial mining is only in its infancy. Water will in future be brought in from the principal rivers to command the high lands, and when that time comes far more gold will be got than has ever yet been obtained.

Coal Mining.

I have now to refer to the coal mining industry, which continues to expand in proportion to the growth of our population and the establishment of other local industries requiring fuel. We can never expect any rapid increase in the output from the mines until a foreign market is found for the disposal of our coal; and, as it is only bituminous coal that can be disposed of abroad, the greatest increased output may be expected from the coal mines on the west coast of the Middle Island. This, however, will necessarily be slow, as the present state of the harbours at Greymouth and Westport do not admit of vessels having sufficient carrying-capacity entering to take away large cargoes of coal, which is absolutely necessary in competing with coal mines in other parts of the world for the production of coal for foreign countries.

The total output from the mines last year was 740,827 tons, as against 719,546 tons of the former year, showing the increased output last year to be 21,281 tons. The coal imported from other countries last year was 108,198 tons, while for the former year there were 112,960 tons, showing a decrease in the importation last year of 4762 tons. The imports were 6048 tons from the United Kingdom, 102,145 tons from New South Wales, and 5 tons from Tasmania. The total export of coal was 92,744 tons, of which 85,987 tons was colonial produce, and 6757 tons imported coal from other countries. Of the quantity of coal exported 68,593 tons was for coaling direct steamers trading between the colony and the United Kingdom, and will, therefore, be treated, as in former statements, as coal consumed within the colony, as these steamers are wholly employed in trade between New Zealand and Great Britain. Taking, there-

fore, the output from our mines and the coal imported, we have a total of 849,025 tons, of which 26,161 tons was exported, leaving the consumption within the colony last year to be 822,874 tons, as against 807,058 tons for the previous year being an increased consumption last year of 15,006 tons.

Taking the output of the different classes of coal from the mines in the colony there was 429,981 tons of bituminous coal, 104,566 tons of pitch coal, 180,870 tons of brown coal, and 25,410 tons of lignite; which shows an increased production last year of 11,392 tons of bituminous coal, 2177 tons of pitch coal, and 10,055 tons of brown coal, while there was a decreased output of 23,343 tons from the lignite pits.

The districts in which there was the largest increase last year were Kawakawa and Hikurangi, where the increase was 21,076 tons. This was due entirely to the workings of the Hikurangi Coal Company's mine being more developed, the output last year being 21,257 tons. There was also an increased production from the mines in the Waikato district of 14,150 tons, and from the mines in the Whangarei district of 4245 tons. The latter is due to the development of the Kiriapaka Mine, at Ngunguru. There was also an increased output from the mines in the Malvern district of 2830 tons, but there was a falling off in other districts, the largest decreased production being in the Westport and Greymouth districts, which was 8349 tons and 5581 tons respectively.

The mines in which there has been the largest output are the Coalbrookdale, 183,745 tons; the Brunner, 99,809 tons; Kaitangata, 63,857 tons; Blackball, 43,055 tons; Taupiri Extended, 40,160 tons; Westport Cardiff, 32,702 tons; Hikurangi, 21,257 tons; Shag Point, 17,418 tons; Taupiri Reserve, 17,135 tons; Castle Hill, 16,365 tons; Walton Park, 16,030 tons; Allandale, 12,238 tons; Nightcaps, 11,300 tons; and Ngunguru, 10,996 tons; the output from all the other mines being under 10,000 tons.

Of the two mines referred to in my last statement as being opened up, the Granity Creek Mine, belonging to the Westport Coal Company, has started to send coal to market; but the other—the Coal Creek Mine, belonging to the Greymouth and Point Elizabeth Railway and Coal Company—is not yet ready to commence the output of coal, the tramway line between the Granity Creek Mine and the railway, and the necessary works in connection with the storage of the coal, having not yet been completed. In regard to the Coal Creek Mine, the contracts have been let for the whole of the works in connection with the construction of the railway from the mine to Greymouth, and the work is expected to be completed in about eight months.

Accidents in Coal Mines.

It is my painful duty to state that one of the greatest disasters that have ever taken place in the colony occurred, by an explosion in the Brunner Mine, on March 26 last, by which 65 men lost their lives. Steps were at once taken to get the mine thoroughly examined by competent experts, to ascertain the cause of the explosion; and a Royal Commission was appointed to enquire into all the bearings of the case, in order to recommend such steps as might be deemed necessary to prevent a like occurrence in future. The report of that Commission clearly shows that the explosion was caused by a blown-out shot, fired by some one on the morning of the disaster; but, as all the men who were in the mine lost their lives, accurate particulars in regard to the disaster will never be known. The evidence of all the experts, who were mine managers of high standing, as well as that of the Inspectors of Mines, was unanimous; that a blown-out shot was the cause of the disaster, and that the explosion was not due to an out-burst of gas.

The report of the Commission, which will be laid on the table, shows that no blame is due to the management, and that there was passing through the mine double the quantity of air required by Act. It is impossible to insure the safety of the workmen in mines by any legislative enactment unless the workmen themselves use every precaution for preventing accidents. It is gratifying to find that the people in every part of the colony, and also from the neighbouring colonies, have responded nobly towards subscribing a fund for the relief of the widows and families of those who have lost their lives in the disaster. This fund now amounts to about £29,000, and by careful administration it should go a great way towards providing means to assist the families who were bereft of the breadwinners until the children are old enough to earn their own livings.

Earnings of Coal Miners.

The earnings of the coal miners depend greatly on the time they can work in the mines. As far as the bituminous mines on the West Coast are concerned, the men are not steadily employed, the output being controlled by the regularity with which vessels enter the ports of Westport and Greymouth to take away the coal. There is not sufficient storage, either at the mines or the ports, for large quantities of coal, and on many occasions vessels are prevented by stormy weather from entering or leaving these ports, no work being done in the mines in the meantime, unless in making repairs. If the miners could get constant employment they could earn good wages; but, as it is, they are sometimes idle for one or two days a week, and when coal is required to load vessels more men have to be employed than would be the case if sufficient storage of coal was provided at the mines.

Taking the rate of computation, as in former years, that the cost of labour in producing the coal at the mine mouth is equal to 6s. per ton, and also taking the number of men employed in the whole of the coal mines last year, which was 1799, the output being 740,827 tons, the average wage per man was about £123 10s. 9d. per annum, or about £2 7s. 6d. a man a week.

(To be continued.)

GELDENHUIS ESTATE AND GOLD MINING COMPANY (ELANDSFONTEIN No. 1), LIMITED.

According to cable advices received from the head office at Johannesburg, an interim dividend of 12½ per cent. has been declared, payable to all shareholders registered at the close of business at 4 p.m. on Thursday, October 15, and to the holders of coupon No. 9 attached to share warrants to bearer. The transfer registers will be closed from October 16 to 22, both days inclusive, and the dividend warrants will be issued as soon as possible after the arrival at Johannesburg of the return of transfers lodged for registration at the London offices of the company, 120, Bishopsgate-street Within, E.C., up to the closing of the book. After allowing for this dividend the company will carry forward a balance in cash of £8000.

ANGLO-MEXICAN MINING COMPANY (LIMITED).—The following is a statement of expenses and production at the mine for the month of April:—Gross output, value £11,910; working expenses, £6572; nett profit, £5338.

Warrants for dividend No. 5 of 10 per cent. have been posted to all shareholders in the ROODEPOORT UNITED MAIN REEF GOLD MINING COMPANY (LIMITED).

Dividend warrants for the first dividend of 1s. per share (free of income tax) have been posted to all priority shareholders in the NEW ELKHORN MINING COMPANY (LIMITED) registered on the books on August 31.

The secretary of the MOUNT MORGAN GOLD MINING COMPANY (LIMITED) writes:—"A dividend of £25,000, being 6d. a share for the month of September, is payable on October 1.

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G. T. PLUNKETT, Lieutenant-Colonel (late R.E.), Director.

DIARY.

Monday, October 5.

Golden Link, Cannon-street Hotel, 11.
 Hannan's Treasure Trove, Winchester House, 12.
 White Rock Silver Mine, Winchester House, 12.
 Lake View Extended, Winchester House, 2.
 Great Boulder East Extended, Cannon-street Hotel, 2.
 Palmarco, Institute of Chartered Accountants, Moorgate-
 place, 2.30.

Tuesday, October 6.

Anglo-Westralian Development Syndicate, Cannon-st. Hotel, 12.
 La Yesca Gold and Silver Mines, Winchester House, 12.
 Star of the East, Winchester House, 2.30.
 Tin Ticketing, Tabb's Hotel, Redruth, 1.

Wednesday, October 7.

Melbourne Democrat, Winchester House, 12.

Thursday, October 8.

Vale of Coolgardie, Cannon-street Hotel, 12.30.
 Cardiff Steam Coal, Cannon-street Hotel, 1.
 Old Broad Street Syndicate, Winchester House, 2.
 Camden Exploration, Winchester House, 2.30.

Friday, October 9.

White Lead, Cannon-street Hotel, 12.
 Apex Mines, Con. Gold Fields of S.A. Office, Johannesburg, 12.

Shareholders in the ZEEHAN-MONTANA MINE (LIMITED)
 are informed that warrants in respect of the interim dividend of
 8d. per fully-paid share, and 6d. per share 15s. paid, due on
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LONDON: OCTOBER 3, 1896.

ROODEPORT UNITED MAIN REEF.

IN distinct contrast to Modderfontein, with which company
 we deal in another article, the position of the Roodeport
 United Main Reef is highly encouraging, and is likely to
 give support to the liveliest anticipations of future prosperity.
 It is interesting, and not a little amusing, to look back to the
 time when very few thought highly of the company's prospects,
 and when, in consequence, it received very little specu-
 lative attention. That, too, was only a short time ago, and the
 transformation that has taken place in a comparatively short
 period comes within near approach of the remarkable. At that
 time it was overshadowed by the Durban-Roodeport, which
 was considered to possess the choicest portion of the Roode-
 port section of the Rand, and that consequently other com-
 panies must put up with much poorer ground. We have since
 learnt how entirely false this impression was, and upon what
 vague information it was supported. Since then such wonderful
 success has attended the Roodeport United that it has become
 a powerful rival to its prosperous neighbour, and many things
 are more improbable than that it will some day take the lead.
 The great turn in the company's fortunes came, of course, with
 the absorption of the Evelyn and East Roodeport prop-
 erties, which was looked upon at the time as one of the
 most important of Witwatersrand amalgamations. Previous to
 this the area of the property consisted of 54 claims. It was
 then increased by 37 claims, of which 26 are reef bearing. The
 company was thus put in possession of 80 claims, the increase

being equivalent to 50 per cent. To make the purchase the capital was increased from £130,000 to £150,000, thus showing at a glance that the bargain was an eminently profitable one for the purchasers. Coming to the operations of the past 12 months, it is impossible for anyone to be dissatisfied with the results. On the contrary, they should give rise to general satisfaction, for not only are they gratifying as evidence of past success, but they give substantial foundation upon which to build assurance of future prosperity. And in estimating those results it must be borne in mind that the past year has been distinguished as a period of grave troubles and difficulties; that the mining industry has been hampered by political agitation and other obstacles, and that nearly every company of note has suffered. The Roodepoort United has not been isolated, but along with the rest has severely felt the influence of these deterrent evils. Had, however, everything gone on smoothly; had there been no scarcity of labour, no drought, no political troubles, no difficulty of transport, the results would have been far more brilliant, but, notwithstanding all these obstacles, it is highly significant that the period under review has been so successful, and that larger dividends have been paid than in any period of its history. What does this augur for the future? The profit earned during the 12 months was £74,315, as compared with £76,411 19s. 11d. for the previous year, out of which £52,500 was distributed in dividends, as against £45,000 for the year ending June, 1895. This makes a distribution of £111,000 since August, 1891, or 80 per cent. In addition to this, £3961 12s. has been carried forward from profit and loss account to now account, after writing off 15 per cent. for depreciation of machinery, plant, &c. It is very satisfactory and encouraging to note that the ore reserves have been considerably increased. The amount of south reef in sight on June 30 last was 126,974 tons, as against 78,055 for the previous term, thus showing an increase of 48,919 tons. There has also been a small increase in the amount of main reef developed—viz., from 42,767 tons to 47,581. In the period under review 83,235 tons of ore were crushed, yielding 38,908 ounces of bullion, worth £145,506, an average of 34s. 11d. per ton, and 52,655 tons of tailings were cyanided with a product of 11,529 ounces of bullion, worth £34,023, an average of 12s. 11d. per ton. Altogether, the revenue from the mill, cyanide, and sale of slags reached a total of £179,829, or 43s. 3d. per ton milled, and the working costs (excluding depreciation) amounted to 25s. 7d. per ton, leaving a profit of 17s. 8d. per ton milled. In estimating the future of the company one must take into consideration that 70 stamps will be at work, so that they will be able to perform more work than has been accomplished during the past 12 months. Then, again, the working costs have been considerably reduced during the past year—viz., by no less than 4s. 9d. per ton, so that this further economy will tell upon the future profits. Considering the company's prospects it cannot be said that the present price of the shares is at all dear. There is margin for much higher rise, and there is little doubt that when the atmosphere is somewhat clearer, and confidence is once more restored, and activity once more prevails in the Mining Market, that Roodepoort United will be among the first to receive the attention and favour which they deserve.

NEW MODDERFONTEIN.

IN spite of the doubtful prospects of the New Modderfontein and of the somewhat unfavourable results of the past year's working, there are not a few who are hopeful that the future of the company is one not altogether lacking assurance. There is certainly in the present position of the company something to support this attitude of mind, but there is seemingly much more to give rise to discouragement and neglect. It is a relief to know that all the claims in dispute have been settled in the company's favour; that the grade of the ore is improving; and that no less than 183,000 tons of ore are developed, estimated at a value of 14 dwts. But all this in itself does not justify a sanguine view of the company's future; not certainly of its immediate future, especially in face of the fact that previous hopeful anticipations have not been supported by subsequent results. On the other hand, the company is in possession of an enormous extent of territory, but to put against this is an enormous capital, and as the ore has not hitherto been found of a high grade character, the prospect of adequate dividends is at present remote. Then, again, the financial position cannot be described truthfully as sound, and it is not pleasant to feel a consciousness that before any measure of success is likely to reward the efforts of the management, a considerable outlay of capital will be necessary. In consequence of the disappointment experienced in opening up the Modderfontein Reef, it has been decided to go deeper, and to develop the underlying Van Ryn reefs. Accordingly the eastern section of the mine is to be opened up, where the North, or Van Ryn, reef turns into the property, and where it shows croppings for a distance of 5000 feet, of which 1200 feet have already been proved by prospecting, and from which, so far, satisfactory assays have been obtained. Hopes, therefore, must be concentrated upon development here, but whether those hopes will be doomed to disappointment or rewarded with success it would be hazardous to forecast. The directors are certainly justified in transferring their operations to this section, and to anticipate some measure of success, seeing that the reef in the Van Ryn property has turned out so promising. But success is by no means assured, and it would be advisable to wait and see what happens before purchasing upon the prospects of present indications. Whatever the result of development may be, there is, nevertheless, one thing absolutely necessary, and of which there can be no two opinions. Further economy is essential to success. To that the management is fully alive, and it is only fair to note that their ceaseless and energetic endeavours are directed to this end.

A few particulars of the company will doubtless prove interesting. It was formed in June of last year, with a nominal capital of £1,000,000 in 250,000 £4 shares, of which

200,000 of a face value of £4 each were given to the old company, 25,000 taken up by the shareholders, *pro rata*, at £12 each, providing £300,000 working capital, and 25,000 shares held in reserve. The company took over the property and other assets of the old company, and also the liabilities. The former included nearly £100,000 in cash provided by a previous reconstruction, whilst the latter included the purchase price of Gauf's Claims, which were purchased by the company on judgment being given against the Modderfontein. The total cash provided, therefore, was £400,000, and a great portion of this capital has been absorbed in settling the various claim disputes which arose out of the proclamation of the farm. The amount expended in settling these disputes, representing 110 claims of Gauf and 23 claims of Williams, absorbed over £120,000 cash. During the year it was considered advisable to settle a claim dispute in respect of 26 claims for a cash consideration of £9000. A further claim dispute in respect of 36 claims south-east of the mynpacht has been settled in the company's favour for 1100 Modderfontein shares, which have been taken out of the company's reserve shares, thus reducing them to 23,900. With the settlement of this dispute all claim disputes are now at an end, and the company is now in peaceful possession of the whole of the property, which consists of a mynpacht 120 morgen in extent, equal to 172 claims, 42,000 square feet, and further 1061 claims and three water rights. In consequence of all these heavy payments, the funds of the company became much restricted, and at the end of May of this year the position was practically even. Since then, however, capital expenditure and mine development have continued, and to-day the company's liability is over £20,000. In order to expedite development, and to thoroughly equip the No. 2 vertical shaft, it has been decided to issue some of the reserved shares, and in order that the shareholders shall have the first right of applying for them the directors have decided to issue 11,305 shares at £6 10s. per share, which is at the rate of one in 20. This issue has been guaranteed, and the guarantors have an option on 8595 shares at £7 10s. per share. The 11,305 shares will realise £73,482, and the 8595, if taken up, another £61,482, which will give a total of £137,944, with 4000 shares still in reserve. This, the consulting engineer thinks, will be amply sufficient to equip the No. 2 vertical shaft and provide the necessary equipment for developing the eastern section. We have already remarked on the improvement lately shown in the grade of the ore. Whilst for May the return was only 4.9 dwts. from the plates and 1.18 dwts. from the tailings, this average increased to 5.32 dwts. from the plates for June and 3.61 dwts. from the tailings, and in July to 4.85 dwts. from the plates and 3.57 dwts. from the tailings. For the three months ending July, 22,318 tons have been crushed, giving 5987 ounces from the mill, 2113 ounces from the cyanide, giving a total value of £26,894, equal to £1 4s. 1d. per ton. Should, of course, this improvement continue, it will be able to show a slight margin on the average cost, which is about 31s. Such is the present condition of the property, but, as already observed, it cannot be described as distinctly promising. At any rate, there is not much likelihood of success attending the company in the immediate future. A great deal, of course, depends upon the development in the eastern section of the property, and it is to be seriously hoped that here will be found the treasure which will retrieve the company for the arduous struggles it has gone through, and the grievous disappointments it has experienced.

HAMPTON PLAINS ESTATE.

THE report of the Hampton Plains Estate, just issued, must, indeed, be satisfactory reading for the shareholders. The period it covers—18 months—has been one of almost unbroken prosperity for the company. It is true that the general outcome of a spell of successful working—a good dividend—is in this case lacking, but the absence of such a payment is in part compensated for by the return of 4s. per share on the capital, which certainly looks well for the financial stability of the concern. It is not often in the history of City finance that capital, once subscribed, is returned to the shareholders, and the fact that in the case under notice this has been done shows that the company is in a sound and strong financial position, while it justifies confidence in the present directorate as one that may be safely trusted to guard the shareholders' interests. The property possessed by the company is vast in its proportions. In freehold mineral lands its holding is 216,000 acres, while in leasehold the company possesses a tract of land covering 1,216,000 acres. The obvious impossibility of taking themselves in hand the development of a territory so enormous has led the company to dispose of some extensive blocks in an extremely advantageous manner, since they not only have in the result a considerable working capital wherewith to pursue their future operations, but they have also realised a sum sufficient to return a fifth of the capital, at the same time retaining in the companies floated to work the blocks they have sold, an interest which will probably turn out to be highly valuable in the future. This mode of dealing with a part of the company's property requires no justification. The magnitude of the Hampton Plains territories, and the advantages which the company have themselves derived, both in cash and shares, from the deal show that it was sound policy.

The record of the company for the past year and a half cannot, it is obvious, be taken as a sample of what the future will be. Almost all Limited Liability enterprises—and development companies especially—are under the necessity of discharging a vast amount of preliminary work before any considerable returns are made from the actual operations. In the case of the Hampton Plains Estate a "large proportion of the period under review was occupied in organising a competent staff in Aus-

tralia, in making all necessary arrangements with managers, engineers, prospectors, surveyors, well sinkers, camel owners, and others whose services were indispensable for the proper exploration and development," and the fruits of all this labour will not be gained for a long time to come. It is plain that the directors do not intend to dispose of the pick of their mining properties. There are in particular some blocks adjacent to Coolgardie and to the south-west of Hannan's, upon which the directors and management propose to concentrate a good deal of their energy, providing means of communication and transport, boring for water, prospecting for gold and other minerals, and, in short, applying all the methods known to modern development companies. The directors will hardly be held by most people to have been too sanguine in their view that the capital and enterprise devoted to this particular work will be amply rewarded in the future. So far as the Estate itself is broadly concerned, the numerous discoveries of well-defined and rich reefs give colour to the view that only time, capital, ability, and care on the part of the management are needed to make the territories turn out permanently remunerative. In connection with the gold-bearing capabilities of the company's territories, it is interesting to note that several highly satisfactory reports have been received, showing in a large number of cases not only that the geological formations are such as to warrant a belief in the existence of auriferous deposits, but also that rich gold has been found in more than one district. A cable has, moreover, just been received, to the effect that one of the reefs recently discovered on "Block 48" has now been proved for a length of 2000 feet, showing visible gold, while another reef (20 feet in width) has been discovered on the same block. A similar discovery has also been made on "Block 59"—which will be very good news for the proprietary.

Among the company's subsidiary enterprises in which they continue to hold a substantial interest may be mentioned the Coolgardie Waterworks. Already it appears that a large supply of water has been obtained, and Mr. LAPAGE has formed a highly favourable opinion as to the capability of the company to supply Coolgardie with the water which is necessary for the mining operations carried on there. At the most favourable estimate it must be several years before the Government scheme of water supply can come into effectual working—the scheme being of an elaborate and complicated character, which necessitates the expenditure of a long period of time upon the construction works—and in the meantime there is nothing to prevent the company we have just named from making a strong bid for the work of supplying the mining capital with what it needs above all things. There is at least the certainty that if only the company finds itself able to supply water, the mining community at Coolgardie will only be too willing to receive it upon any reasonable terms. Judging from all the accounts that have come to hand in London as to the present condition of the supply in Western Australia, there should be a fortune to be made there in water as well as in gold. According to present estimates a revenue of £32,600 per annum at least can be obtained for the plant in course of erection, while with the provision of a second similar plant this revenue should without difficulty be doubled. With such a record before them for the past 18 months' working, it is not to be wondered at that the shareholders were unanimous and enthusiastic in their reception of the report and policy unfolded to them by Lord ARTHUR BUTLER, Mr. LAPAGE, and Mr. ALLAN STONEHAM, at the meeting on Thursday last. Some small allowance being made for directorial optimism, there would certainly be considerable difficulty in putting anything but a favourable interpretation upon what transpired in the speeches and discussion. As Mr. STONEHAM pointed out, the company's record for the brief time during which it has already been in existence compares very well with that achieved by any similar company during the same period. And it may justly be pointed out that the most business-like consideration of the company's prospects for the future establishes the probability, and almost the certainty, that they will by far outweigh anything which has been achieved up to the present. The company's interests are many-sided and admittedly valuable, their future is full of possibilities which are none the less satisfactory because not easily defined, and the actual present, as reflected in the resolution to return 4s. upon every £1 share held in the company, is a splendid record, after so short a corporate existence. Under these circumstances the shareholders do well to repose confidence in the board, and so long as matters remain upon their present footing that confidence is not likely to be disturbed.

CYANIDE WORKS FOR BRITISH COLUMBIA.

THE last mail from Canada brings the highly satisfactory news that a cyanide plant has been established at Cariboo, and was recently opened with great ceremony and rejoicing before a large concourse of spectators. Miss BOWRON, the daughter of the Gold Commissioner, opened a valve which started the cyanide into operation, and afterwards, descending to the engine room, set the mill machinery into motion. From the interest which was taken in the proceeding, and the graceful little ceremony which was arrayed for the inauguration, it is apparent that the high importance of the new departure in metallurgical treatment was locally fully recognised. The tremendous benefits which in nearly every quarter of the globe have accrued from the adoption of the simple but effective process known as the cyanide process are so familiar to the public that any further reference to them is needless. All that cyanide has done for South Africa will probably never be known, and it was to be expected that the leaders of the mining industry in so promising a country as British Columbia should be anxious to obtain for themselves some of the results which it can produce. There is such wide agreement as to the policy of introducing the plant that its establishment is due conjointly to the action of the British Columbian Government, the Cassel Gold Extracting Company, and the

Cariboo and Williams Creek Consolidated Mining Company. It may, however, be surmised that the initiative was taken by the Cassel Company, who, we are informed by private advices, have opened an agency in British Columbia for pushing their process, and have appointed Mr. W. PELLEW HARVEY, F.C.S., a well-known Cornish gentleman, as their representative. It is possible to wish, at the same time, success to the enterprise of this company, and prosperity to the colony itself, for there can be little doubt that British Columbia, in these first years of its increased activity, would benefit considerably from its adoption on a large scale. Such in any case is obviously the opinion of the inhabitants themselves who at the initiatory ceremony adopted unanimously a resolution hailing with "unfeigned satisfaction the completion of so important a factor in the future development" of their quartz mining. The Cariboo ores, it appears, are of a highly refractory character, and if the process can be adapted to treat them satisfactorily a great advance will take place in the industrial position of the colony. That this will eventually be the case there is every reason to hope. Mr. MARSH, who has the supervision of the works under his control, speaks very hopefully of the work done up to the present in the Cariboo country, the treatment of the local ores having hitherto turned out to be highly satisfactory in character. This fact is the more emphasised in the proposal, emanating from Mr. MARSH, to increase the plant, and to commence purchasing ores, tailings, and concentrates in the district for treatment. It is, further, the opinion of some chemists that the success of the process would lead to the rapid development of the quartz ledges of Cariboo, which up to the present have been permitted to languish in an unjustifiable neglect. Consistent supporters as we have always been of the mining industry in British Columbia, we are glad to see that the operators in that colony are prepared to adopt any innovation which they have reason to suppose will redound beneficially to the colony's material prosperity.

SOME WESTRALIAN MINING LITERATURE.

WRITE as they may, it is only with the greatest difficulty that the abler and better known authorities on West Australian mining questions can satisfy the ever-increasing demand on the part of the public for reliable opinions as to the actual present and probable future of mining in this popular colony. The interest held by Englishmen in West Australian properties is so gigantic that anything which contributes to the elucidation of the many difficult questions with which mining in that country abounds is sure of receiving careful attention. Only a short while ago Herr SCHMEISSER published his eagerly-awaited report on the gold fields, and the sensation which was created by his utterances, guarded and general though they were, will no doubt be still fresh in the memories of many of our readers. For the same reasons which contributed to the interested reception of Herr SCHMEISSER's report in this country the investing public will welcome an interesting and pointed little pamphlet, entitled "A Geological Sketch of the Coolgardie Gold Fields," which Mr. BRENTON SYMONS, the well-known mining engineer, has just issued, and which will, no doubt, be read with considerable interest by the large circle of the investing public who are always anxious for more information respecting the sphere of industry in which they have launched their capital. Though the title of the pamphlet is fully justified by the terse, but able account which Mr. SYMONS has given of the field, there is a good deal of matter which transcends the merely technical aspects of the question, and which would appeal to the investor in mines rather than to the mining engineer. The chapter, for instance, in which Mr. BRENTON SYMONS deals with the climate of West Australia, and the all important, ever present question of the water supply will, no doubt, be carefully consulted by all anxious to arrive at the truth in the matter. The hopeful tone which has always characterised our comments on the question is fully borne out by our author, who reminds us that every new gold field in the world has had its own special difficulties, which have in every case been overcome by science and by the perseverance of those who are concerned to combat them. The specially-marked difficulties against which the West Australian mining industry has to contend are no doubt those of water scarcity and high freights. As to the first, so much has been said and written that there is little occasion to expatiate further upon it at the present time. As the author of the pamphlet states, the difficulty is, in the first instance, due to the insufficiency of the rainfall and the rapid evaporation, which has the effect of saturating the lakes and water-pans with salt. The various proposals which have been made to meet the scarcity have been sufficiently discussed to fix their details firmly in the public mind, and the prompt and decided action which the Government have taken will, it may be hoped, effectually remove the chief obstacle to mining in West Australia. The same hope may reasonably be entertained with regard to the freight charges, which have already been considerably reduced owing to the construction of railways, and will, no doubt, be even further reduced in the near future. A highly important result which will follow upon the reduction of freights will be the cheapening of labour, which is now, owing to the high rate of wages, a very expensive item in the balance-sheet. It must not be forgotten, moreover, that in a plentiful and good supply of timber, and an unexceptionable climate, West Australia possesses some advantages which operators in other mining fields may well envy. In any case, the pamphlet before us will be sure to receive a cordial welcome at the hands of the public who take an intelligent interest in West Australian questions. The well-considered plan on which it has been conceived, and the simple and interesting style in which it has been written, commend it to the technical mind without placing it at all beyond the capacity of those more innocent of mining knowledge.

KAURI FREEHOLD.

If ever a company set forth upon a career with omens of success it is the Kauri Freehold Gold Estates. In the first place, its field of operations is situated in New Zealand, a country remarkably rich in the precious metal, and possessing potentialities which it were vain to endeavour to compute. In the second place, the company's properties are of vast extent, and are a portion of the famous and highly-promising Hauraki field, a district the richness of which it is in these days needless to emphasise. Thirdly, it has upon its local board gentlemen of technical eminence in the colony, who have a reputation to sustain, and who would, naturally, not jeopardise that reputation by any connection with a company which did not possess first-class recommendations. This in itself is a sufficient guarantee and assurance that everything will be done to earn success, and should induce shareholders to await the future with much repose and confidence. Fourthly, the company is already in possession of mines which on development display most promising indications, and of which very high opinions are held. These will, of course, be floated into companies, and the success which will attend their flotation cannot be considered doubtful, and hence the shareholders are thus assured of early and profitable reward. We repeat that the company starts upon its career under the most favourable of auspices. No one can dispassionately read the Chairman's address at the statutory meeting without arriving at this conviction. That speech cannot but create hope and assurance in the minds of all who read it. Hence the Chairman and directors have voluntarily, but with undoubted sincerity, burdened themselves with a great responsibility. They themselves have absolute faith in the future of the company, and have endeavoured to instil similar confidence into the hearts of the shareholders. Consequently, the latter are looking forward to great things, and the directors have laid themselves under the obligation to strive to the utmost of their power to achieve them.

AMERICAN MINERAL STATISTICS.

AMERICAN official mineral statistics for last year, only now available in a complete form, show that with the exception of silver and lead the production of the chief metals is going forward in that country upon an expanding scale. There was a notable advance in the amount of gold obtained from American mines, which, in 1895, reached a total of 70,470 kilogrammes (2,265,612 ounces) of fine metal, of the value of \$46,830,200, or an advance over the previous year of 7671 kilogrammes (246,331 ounces). Inasmuch as there has been no general resumption of hydraulic mining in California, the increased production of gold has been due to an extension of the working of old mines; to the opening of new ones, and to improvements in methods of working and of reduction which make low grade ores payable. As to silver, the production again shows a decrease. The output was 1,441,087 kilogrammes (46,331,235 ounces) of fine metal of the commercial value of \$30,244,296, or a decline of 109,300 kilogrammes (3,515,640 ounces) on 1894. The new total is about 76 per cent. of the production of 1893. The output of aluminium increased by 10 per cent., and there has also been a moderate growth of antimony. Lead has gone back by 2½ per cent., the new total being 4,156,854 short tons. Yet the United States consumption of this metal shows a considerable increase; the explanation is the very large quantity of lead smelted from foreign ores or refined from foreign bullion. Quicksilver (which is still obtained by America entirely from her Californian mines) improved in output from 30,440 flasks to 35,122 flasks. Zinc production extended considerably, rising to 85,858 short tons.

THE DIORITE KING.

It is not often the case that reports made as to one property are applicable with little, if any, qualification to another one, but an exception to this rule would seem to be furnished by the Diorite King blocks, which lie two on one side and two on the other of a property upon which Mr. G. R. FEARBY has been able to report in highly favourable terms, as carrying gold-bearing and well defined reefs. From the fact that within the space of an acre more than 500 ounces were picked up shows at least that the locality is satisfactorily gold-bearing. Until, however, more work is actually done on their own property, shareholders in the Diorite King would do well to refrain from indulging in hopes of too sanguine a character, based on the known capabilities of the neighbouring property. At the same time, it is satisfactory to note that so far as they have been at present carried out the operations on the Diorite King have turned out well, or, in mining phraseology, healthily, so the shareholders may be forgiven for indulging optimistic anticipations.

THE IRON AND STEEL MARKET.

The following is the Weekly Report of Messrs. BARRY, HEAD, and Co., October 1:—

TO-DAY'S APPROXIMATE BASIS PRICES, WITHOUT ENGAGEMENT.			
	Price per ton.	F.o.b at	Less discount. Per cent.
IRON.			
Superior Crown Bars ...	£5 6 ...	Middlesbrough ...	3
Common Bars ...	5 0 ...	do ...	3
Ship Plates ...	2 6 ...	do ...	3
Ship Angles ...	5 0 ...	do ...	3
Single Sheets ...	7 5 ...	do ...	3
Puddled Bars ...	3 10 ...	do ...	nett.
STEEL.			
Bars ...	6 0 ...	do ...	3
Ship Plates ...	5 5 ...	do ...	3
Ship Angles ...	5 0 ...	do ...	3
Hoops and Strips ...	6 2 ...	do ...	3
Charlier Shoe Bars ...	6 7 ...	do ...	3
Cot Nails ...	7 2 ...	do ...	7½
Heavy R.R. 56 lbs. ...	4 15 ...	Works Port ...	nett
Light Rails, 14 lbs. ...	5 5 ...	do ...	do

Terms: Cash against mate's receipt.
For definite quotation kindly submit specification.

THE MINING MARKET.

FRIDAY EVENING.

The Settlement satisfactorily concluded.—Markets steady, with rather more business.

THIS week has witnessed a marked improvement in the amount of business doing in the Mining Market. There has been more give and take about the dealing than for some time past, and for the moment speculation appears to be fairly divided as to the prospects of rise and fall. The immediate cause of this altered condition of things is that the past few days have been more prolific in what may be called "news"—that is to say, events which have supplied a basis for buying or selling. It is a great relief to see the market lifted from its dead level of apathy. Up to the present the public has taken but a small hand in the deal, but the fact that markets have fluctuated, rather than going straight away all in one direction, seems to be attracting many of the semi-professional division who have been for some time standing aloof.

The making up for the End September settlement monopolised attention on Saturday. The nominal increase in the value of money was counter-balanced by the reduction of the speculative account for the rise and the corresponding enlargement of the bear position. The dealers tried their level best to disguise the extent of their commitments for the fall, and to that end set out by exacting rather stiff Contango rates than those ruling at the previous settlement. They were unable to keep up this pretence after the first hour or so, and those brokers who had waited managed to get their business done on much more reasonable terms than the early comers. There was a general easing off towards the afternoon, and in one or two specialities rates ran off altogether. This was the signal for a fair amount of bear covering, which imparted a decidedly cheerful tone to the market. There was not much business for the new account, but a satisfactory feature was the cessation of the idle rumours as to wholesale failures and other calamities. The quotation list was at a generally higher level, when dealers separated, West Australians sharing in the improvement with Kaffirs, whilst there was very little doing in the Miscellaneous section. On Monday the carry-over in the general market called for attention, but Africans and Australians both opened well under the influence of Saturday's successful making up. About noon, however, Kaffirs broke away, the pretext being an article in the *Times* describing the financial position of the Transvaal Government in anything but cheerful terms. Although in the majority of cases prices of Africans were a shade harder on balance, the market was dull at the close, whilst West Australians finished positively flat. New Zealanders were steady, and Indians good. On Tuesday, which was "name day," the market developed nervousness, and prices were generally weak. One small failure was announced, and the air was thick with rumours of more to come. There was a distinct rally before the close, bears buying back. The sensational reports of a British force having been "hounded in" by the Mashona forces were not accepted seriously. On the other hand, dealers affected to attach considerable importance to the story that one of the West Australian financial companies was in difficulties. In the Miscellaneous section, New Zealanders held their position, but Indians were rather easier. On Wednesday the payments in connection with the Settlement were concluded satisfactorily, and as there were no announcements of default, markets brightened up at midday, following the lead of British Consols. On Thursday this cheerful feeling increased, and despite the knowledge that several small men had been helped over the Settlement, the general disposition was to look cheerfully at the financial position. A second small failure was announced this morning, the defaulter being a nomadic jobber who had recently favoured the West Australian market with his attention. The principal factor in to-day's movements was a rise of nearly half a point in the price of Consols, having no more solid justification than the irresponsible statement in a new morning paper to the effect that the Eastern question was definitely settled. When the price of Consols gave way on the lack of confirmation of this story, markets generally grew duller, and some few sales were pressed with the result that prices eased off. There was not, however, the slightest excitement, and at five o'clock Throgmorton-street was deserted, no attempts being made to continue dealing after hours. At this moment it is extremely difficult to forecast the course of prices. The political uncertainty remains the dominant factor, and until this is relieved it is hopeless to expect any marked improvement in prices.

South Africans.

The course of contangos in this section on Saturday indicated the existence of an extensive bear account. On Chartered the charge was about twopenny per share at the opening, but this went off to even. Goldfields Deferred commanded 3 or 4 per cent. to start with, but here again the rate ran off completely, whilst that on East Rand was reduced from 8 to 4 per cent. On gold shares generally the charge was about 7 per cent., the stiffest rates being demanded in the case of the Barnato stocks, upon which the Johannesburg Investment Corporation is practically the only lender. The meeting for the amalgamation of the last-named company with the Barnato Bank was held on Monday in Johannesburg, and the resolutions declared to be carried unanimously. Since the price of Johnnies has given way to 3½, there is no inducement on the part of shareholders to subscribe for the new cash shares at 3½, and it appears probable that Messrs. Barnato Brothers will have to fulfil their guarantee. It will be interesting to observe with what alacrity they avail themselves of this opportunity. Barney Banks are unchanged at 2, after receding below the figure. The Consols are unchanged at 2½, which is also the price of Buffelsdoorn. Glencairn have given way ½ to 2½, whilst small gains are shown in George Goch at 2½, Ginsberg at 2½, and Kimberley Roodpoort at 2½. New Primroses are quoted ex the rights of subscribing to the new capital, but as the price is only 5½, there does not appear to be much tangible value in the privilege. East Rand made up at 6½, and subsequently advanced to 6½, dipping to 6½ on Tuesday. There was a rally this morning to 6½ buyers, but at the close the price is a shade lower on balance at 6½. Comets are unchanged at 2½ and Angelo ½ down at 4½. Rand Mines have hardened slightly to 28½, and small decreases are found in Goldenhuis Deep at 5½, Nigel Deep at 1½, and Nourse Deep at 5. The Robinson stocks are not perceptibly changed, though Block B and Langlaagte were rather better at one time. The last prices are 1½ and 5½ respectively, whilst Randfonteins have been firm at 2½. Values have been well sustained in the Eckstein Group, Goldenhuis Estate has put on ½ at 3½, purchasers being induced by the announcement of a 12½ per cent. dividend. Henry Nourse has risen ½ to 6½, and Jubilee ½ to 9. Modders have been weak, but have rallied to 6½, which is only ½ below last week's price. Jumpers have lost ½ at 6½, and Salisbury and Heriot ½ each at 3½ and 9. Amongst the shares which have not shifted

their position are City and Suburban at 4½, Simmer and Jack at 6½, Wimmer at 8½, and Village Main Reef at 6. Knights have improved ½ to 6½, at which price Durban remain on last week's mark. Robinsons have receded ½ to 8½, Kleinfontein ½ to 3½, and Sheba ½ to 1½. Bantjes have receded ½ to 3½, and Orion ½ to 1½. Gold Fields have been an active market under the varying aspects of the position during the Settlement. The shares have been up to 12½ and down to 11½, closing ½ down at 12. Gold Fields Deep are ½ better at 10½, and Gold Trust unchanged at 7½. Now Africans have lost ½ at 2½, whilst Oceana changed at 7½. There has been a good deal of excitement in Klerksdorp, which rallied to 14s. after the carry-over, but broke away heavily on Thursday, on rumours of an impending reconstruction. The publication of this story caused fresh sales this morning, and shares changed hands as low as 8s., from which point there was a rally to 9s. 6d., marking a net loss of 3s. 6d. on the week. Chartered have moved between 2½ and a shade over 3, closing without change at that figure, whilst Mashonaland Agency at 2½ and Willoughby Consols at 1½ are harder. Anglo-French Exploration have moved with East Rands, and leave off practically unchanged at 4½ ex 5s. dividend. The small Lydenburg shares are generally lower, except Lisbons, which have hardened to 6s. Barretts have declined to 12s. 6d., Balkis to 5s. 3d., and Spitzkops to 1. Diamond shares have hardened up on French support, De Beers scoring ½ at 20½, whilst Jagers are last quoted at 9½ ex 6s. dividend.

West Australians.

Contango rates in this department were not much stiffer than at the last two or three Settlements, 8 to 10 per cent. being the prevailing charge. A good deal of selling has taken place during the week, some of it attributed to the difficulties of a financial undertaking referred to above. Hannan's Brownhills have lost ½ at 4½, but Boulders have risen ½ to 7, and Associated ½ to 3½. Associated Southern on the other hand, have given way to 1½, and North Boulders have been especially flat this afternoon, finally losing ½ at 1½. Hannan's Proprietary are ½ down at 1½. Lake View Consols were flat, but have recovered to 7½, and Lake View South are ½ better at 2½. A marked rally from the worst is also shown in Lady Loch, which closes ½ up at 2. Oceanus South United have come into some demand, closing ½ better at 1½, whilst Boulder Main Reefs are a like amount higher at 1½. Menzies shares were generally offered during the progress of the Account, but have since hardened up. Lady Shenton is ½ better at 2½, and small gains are shown in Florence at 1, Gold Estates at ½, and O'Driscoll at ½. Hit or Miss, in which the market has been scintillatingly bolstered for some time, gave way on the publication of a crushing report with which the insiders profess to be dissatisfied. The price is ½ down at 1½. Wealth of Nations has lost ½ at 1½, and Golden Cement ½ at 1½. Ramago Syndicate were flat at one time, but close with a complete recovery at 3½. Black Flags have lost ½ at 1½, and Golden Plum ½ at 7½. W.A. Goldfields are finally ½ down 7½. Hampton Plains were favourably affected by the satisfactory meeting, closing ½ up at 3½. Mawson's Reward have been required for to-day and close ½ better at 7½. Mainland Consols are ½ up at 2½, and Colonial Finance has gained ½ at 3½. London and Globe being the turn easier at 4½.

Miscellaneous.

The chief interest in this section has been in copper shares. Rio Tinto have been a very active market on Paris dealing. The price is finally ½ up at 24½. Anacondas are ½ to the good at 6½. The latest rumour is that the Messrs. Rothschild are acquiring the other half interest in the mine. Tharsis is ½ up at 6½, and Masons unchanged at 3. Broken Hills have hardened to 2½, British remaining at ½. Wentworths are unchanged at ½, but Aladdins have improved ½ to 2½, besides clearing their 2s. dividend. Golden Feathers on disappointing reports from the property have lost ½ at ½. Indians have kept remarkably firm and gains of ½ are shown in Champion Reefs at 8, Mysore at 8½, and Nundydroog at 3½. New Zealanders have commanded a fair amount of attention. Waihi has risen ½ to 6½ and Taitapu ½ to 3, but Silvertons are ½ down at 2 and Waitakauri ½ lower at 4½. In the Charters Towers group Day Dawns have hardened to 12s., and small relapses have taken place in Brilliant Block at 1½, Mills Day Dawn at 1½ and New Brillants at ½.

STOCK EXCHANGE SETTLING DAYS.

CONSOLS.

Thursday, November 5.

MINING MAKING-UP DAYS:

Monday, October 12. | Monday, October 25.

MINING NAME DAYS:

Tuesday, October 13. | Tuesday, October 27.

ACCOUNT DAYS:

Thursday, October 15. | Thursday, October 29.

WEST AUSTRALIAN (GOLD DISTRICT) TRADING CORPORATION.

DINNER TO MR. GOODMAN.

On Thursday evening a dinner was given at the Hotel Cecil to Mr. L. H. Goodman, the managing director of the West Australian (Gold District) Trading Corporation. The chair was occupied by Sir MALCOLM FRASER, K.C.M.G., on whose right sat the guest of the evening. The company numbered over 300, those present including Sir George Hayter Chubb, Bart., Sir Joseph Renals, Bart., Sir Somers Vane, Captain the Hon. J. H. K. Berkeley, Major-General Tolbach, Colonel May, C.B., General Graham, Mr. Edward Lambe, R.E. (Colonel-General of Peru), Hon. Arthur Ponsonby, Colonel Thropp, Hon. Robert Reid, M.L.C., Mr. L. H. Goodman, Mr. J. Waddington, Sir Edward Lee, Colonel Ogilvie, Mr. H. B. Remell, Mr. Geoffrey Rendall, Mr. A. F. Calvert, Mr. C. R. Mordaunt, Mr. J. W. Robertson, Mr. W. O'Malley, M.P., Mr. S. R. Ball, Major Probyn, L.C.C., Colonel DeRies, Mr. J. McDonald, Dr. Herschell, Mr. F. Bailey, Dr. Cooke, Mr. P. Phillips, Mr. C. Goodfellow, Mr. H. T. Rawlins, Mr. T. Marriott, Mr. J. Jameson, Mr. J. Henderson, Mr. Benouck, Mr. Feilden Agnes, Mr. H. Dadson, Mr. R. H. Rhodes, Mr. E. A. Goodman, Mr. C. Dadson, Mr. Morris, Mr. C. Taylor, Mr. John Chapman, Mr. C. Goodman, Mr. T. W. Mill, Mr. Branson, Mr. R. S. Farrow, Dr. Webb, Dr. Coleman, Mr. T. K. Bell, Mr. F. Crookshank, Mr. Walter R. Skinner, Mr. C. Vautin, Mr. T. Rowland Lewis, Mr. G. Lockie, Lieutenant-Colonel Spiller, Mr. W. T. Reid, Mr. C. R. Western, Mr. J. P. Rogers, Mr. H. J. Palmer, Mr. J. Bull, Mr. J. Atkins, Mr. B. B. Bennett, Mr. L. Hindmarsh, Mr. Cremonesi, E.C., the Baron Max Hollender, Mr. W. T. Nadey, Mr. H. T. Squier, and Dr. Morgan Dockrell.

After the usual toast, the CHAIRMAN said: In rising to propose this, the principal toast of the evening, "Our Guest—Mr. Goodman," I see that I am at a disadvantage. It is my misfortune, and not my fault, that I am not better acquainted with our guest. When I find that our guest is a gentleman who is, or, at any rate, has been, studying two of the three learned professions—for I understand that he has been a student of the law and a student of medicine—we will say nothing

of divinity—I think I may say, even if I am guilty of endeavouring to raise a smile on your faces, that he must be a Good-man. (Cheers.) I am told, and I believe truly, that whatever this gentleman undertakes proves a success. (Cheers.) I feel sure that in the position that he has placed himself in, as leader, and, I believe, originator of the company whose honour, I can say, we are in concert with him here to celebrate, he is likely to prove one of the great successes of the present time. (Cheers.) The colony which I have the honour to represent in this country is making great progress, and on that I propose to speak later on; in the meantime, however, I may say it is only right we should thus honour a man who has done what I am told my friend on my right has done, and who has sacrificed himself in this way. He has been offered, I am informed, a service of plate in recognition of what he has done in the service of this company, but he has in the most magnanimous and magnificent way proposed to devote that which was to have been his for the benefit of the destitute sick and the needy. (Cheers.) But, gentlemen, this is not what we might expect from a man who has been decorated by the King of the Belgians for his services in connection with the cause of humanity with the Red Cross order. This shows that you have in your guest this evening one who is determined to go forward, firstly, you will allow, to benefit himself, but also to hold out his hand to his fellow men. (Cheers.) You all know Mr. Goodman, and I need not now expatiate further on his merits. A note has been handed to me, signed by certain members of the company present, suggesting that perhaps Mr. Goodman, in his reply, will make some reference to the position of the company, particularly in regard to the atomic process. (Cheers.)

The toast was enthusiastically received, being accorded musical honours.

Mr. GOODMAN, in responding to the toast, said he should be very much wanting in his duty and in the affection he always felt for his good friends around him if he failed to express that which he felt most deeply from his heart—the enthusiastic reception and generous sentiment and the unanimous goodwill that had been extended to him for the little good he had done for them. When he looked around him, and saw the faces of statesmen, philosophers, the miner, the soldier, and traveller from all parts of the world, he could not easily find words to express his gratification. He remarked that he had never before attempted an after-dinner speech without being provided with the little book, "After-dinner Speeches." (Laughter.) He could qualify in the second degree. If not a good speaker he was a good listener, and after that he was a worker. He had had to listen to many suggestions made to him by his friends, who came 12 deep to advise him how they could benefit the marvellous colony beyond the seas, so full of hope and promise and wealth, and he thought he had been a good listener. It was said that a man had no happier moment in his life, and he could fairly say that no happier moment than this had he known. Sir Malcolm Fraser had spoken of the interest he had taken in this corporation, which he had pleasure in representing as its managing director, but he could only say that if he had done something for his friends he has also done still more for himself. He had stated before that he had a very large interest in the fortunes of the corporation, and since he had had the honour of the acquaintance of the shareholders of the corporation he had not lessened his holding to the extent of a single share. (Applause.) Passing on to give some particulars of the company he represented, Mr. Goodman said that six months ago he brought into existence a small syndicate, with a capital of £20,000. That £20,000 in less than three months had grown into a sum represented on the Stock Exchange by nearly half-a-million, and to-day he had the pleasure of stating that 5000 shares of that little syndicate, which had now grown into a corporation, represented the entire amount, for he believed the founders' shares in that corporation represented at least half-a-million of money. There was not work associated with a speculative enterprise. They were essentially a trading corporation, and whilst he could not attempt to go through the many departments of trade that contributed to make their profits, he might mention that he had found some special monopolies, which he thought would be of great advantage to them. Their sources of income in the gold districts of West Australia were unbounded, and in regard to the hidden wealth of the colony itself they had secured the proprietary rights of a drill that would separate the hard quartz from the mine, so as to enable them to get the gold quartz to grass in a manner that would contribute largely towards the success he looked for in this company. When it was intimated to him by his generous shareholders in the late syndicate that it was their intention to present him with a service of plate made of gold, he requested that the money should be handed to him as the nucleus of a fund for endowing a hospital in the neighbourhood of Coolgardie—(cheers)—a hospital to mitigate the sufferings of the poor, fever-stricken searchers for fortune and for a living. No man had left this country in the interests of his corporation but he had been stricken with fever in one form or another, and the letters he had received had caused him many a pang of regret, especially when he realised that the colony, by reason of its youth, had not been able to provide sufficient accommodation for the poor, suffering creatures. He, therefore, thought they ought to do something, and he appealed to Mr. Allan Stoneham, of the Hampton Plains Estate Company, who most generously promised to give a site gratuitously, conditionally on his (the speaker's) guaranteeing an endowment that would provide what was necessary for the hospital. (Loud cheers.) He was able to promise that there would be an endowment. (Cheers.) He should lose no time, and he assured the solicitor to the corporation, who was also solicitor to the West Australian Government—he alluded to Mr. Rendall—that that hospital should be provided. With a view to suiting the action to the word, he had secured the services of two eminent medical gentlemen—Dr. Seed and his assistant, who in turn had engaged their matron and staff of nurses; their berths had been secured on the good ship *Australia*, and they would proceed out almost immediately, he believed on the 9th of the present month. On their arrival they would go to the fields and erect temporary hospital accommodation, pending the erection of that institution, which it was intended to provide with the least possible delay. They had £5000 as yet on the building fund, and other sums were constantly coming in. He proposed, subject to the approval of those connected with him in the matter, that the institution should be called the Samaritan Hospital—(cheers)—and Her Majesty the Queen had been approached, and he hoped, would lend her gracious patronage to it. (Cheers.) In conclusion, Mr. Goodman thanked those present for the kind way in which they had honoured the toast, and he especially wished to thank his generous friends who had worked on the committee, who, he was pleased to say, had all responded most generously to his invitation to subscribe to the funds of the proposed hospital. (Cheers.) This was truly the red-letter day of his life, and in return for the honour done to him he could do no less than promise his best services in promoting the interests of the West Australian (Gold District) Trading Corporation, of the success of which he was confident. (Cheers.)

The health of the Chairman having been heartily honoured, the proceedings shortly afterwards terminated.

LEAN'S ROYAL NAVY LIST.—We have received a copy of this admirable work. It is a complete encyclopaedia of all information connected with our Navy, and at the present moment especially, when so much interest is centered in our first line of defence, it is of especial interest. It is a work which can be thoroughly recommended, as the information within its pages is thoroughly complete and comprehensive. It is one which every year becomes more popular, its merits becoming universally recognised. We have not the slightest hesitation in recommending it.

The SAN JORGE NITRATE COMPANY (LIMITED) has declared an interim dividend at the rate of 10 per cent. per annum (free of income tax) for the half-year ending June 30, payable on October 19. The transfer books will be closed from October 12 to 17.

THE METAL MARKETS.

THE METAL MARKET, LONDON, OCTOBER 2.

Copper.

THE opening of the speculative market was quiet at £47 15s. three months, and £47 16s. 3d. cash G.M.B.'s; but a fair demand setting in a largish business took place, amounting in all to about 1200 tons, at improving prices, £48 being realised for three months, and £47 17s. 6d. for cash. Business during the next three days was steady, but very quiet, and values gave way, spot being eventually (on Thursday) treated at £47 13s. 9d., and three months at £47 17s. 6d.; but the improvement of over 2000 tons in the statistics for the past fortnight induced rather more firmness, £47 18s. 9d. three months and £47 16s. 3d. s.c. being paid. To-day we had a steady market, with business at £47 16s. 3d. s.c. and £48 to £48 1s. 3d. three months, and the close is steady at £47 17s. 6d. s.c. and £48 1s. 3d. three months, sellers.

Tin.

Opened steady at £58 1s. 3d. s.c. and £58 12s. 6d. three months Straits, but support being feeble, the moderate sales effected led to a decline, spot being done at £57 11s. 3d. on Thursday. The publication of the statistics for September, revealing an increase of nearly 1600 tons in the visible European supplies, depressed values still further on Thursday when cash was treated as low as £57 3s. 9d. and three months down to £57 15s. Later in the day there came a rally to £57 8s. 9d. and £58 2s. 6d. respectively, and to-day after business at £57 7s. 6d. and £57 8s. 9d. s.c., and £58 to £57 18s. 9d. three months. We closed quiet at £57 7s. 6d. s.c. and £58 three months sellers. Billiton opened at £1.35 s.c. and three months, the two positions closing (after inconsiderable variations) steady at £1.34½ and £1.35 respectively, whilst spot Banca closes at £1.35½.

Pig Iron.

Scotch shipments last week were about 6000 tons, or 1600 tons less than in the parallel week of last year. Glasgow opened on Tuesday firm at 46s. 3d. cash, and fluctuated within ½d. above, and ½d. below that price until Friday, when up to 46s. 5½d. was paid, with buyers over at the close, and at 2d. more for one month. Middlesborough closed at 38s. 5½d., and hematite at 47s. 6½d.

Lead.

The firmness has become more marked, and the article closes very firm, and in improved demand, at £11 5s. to £11 6s. 3d. soft foreign and £11 7s. 6d. to £11 10s. English.

Spelter.

October spelter is still more difficult to obtain than it was last week, and the tone is firm with values at £16 15s. to £16 17s. 6d. ordinaries, and £17 to £17 2s. 6d. specials.

Antimony.

There is nothing new to report, and we close steady at £29 to £29 10s.

Quicksilver.

is firm at unchanged values—viz., £6 12s. 6d. firsts, and £6 12s. seconds.

The following are to-night's (October 2) prices of metals:—

	Copper	£ s. d.	¢ s. d.
Tough cake and ingot	...	49 10 0	50 0 0
Best selected	...	50 0 0	51 0 0
Electrolytic Copper	...	50 10 0	53 0 0
Sheets and sheathing	58 0 0
Flat bottoms	61 0 0
Chili bars	...	47 17 6	48 1 3
Good merchantable	0 0 8½
Copper tubes, seamless
Alloys
Brass: Wire	0 0 8½
Tubes (solid drawn)	0 0 7
Sheets	0 0 5½
PHOSPHOR BRONZE: Alloys II...
" III. or	81 0 0
" VII.	78 0 0
" XI...	78 0 0
" Vulcan brand A1	72 0 0
DURO METAL	73 0 0
BULL'S METAL	68 0 0
Ferrobronze (Vivian's)
Ingots	0 0 5½
Ordinary sheets, plates, bolts and bars	0 0 7½
Screw bolts and nuts	0 0 8½
Pump rods, plain	0 0 7½
" finished	0 0 10½
DELTA METAL: No. 4 (per ton)
" Sheets and plates (per lb.)
" Bars, round, square, flat (per lb.)
" hexagon (per lb.)	78 0 0

	Tin	£ s. d.	¢ s. d.
English, ingots, f.o.b.	81 15 0
" bars	82 15 0
" refined	83 15 0
Straits, spot, and three months respectively	...	57 7 4	58 0 0
Australian, spot, and three months respectively	...	58 10 0	59 2 6
Banca " (in Holland)	...	53 17 6	59 0 0
FIN PLATES: Charcoal, best quality	...	0 14 0	0 18 0
" ordinary	...	0 10 0	0 13 6
" Coke, best quality	...	0 10 3	0 10 9
" ordinary	...	0 9 9	0 11 0

These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.

	Iron	£ s. d.	¢ s. d.
Pig, G.M.B., f.o.b. Clyde, spot	2 8 8
" Scotch pig, No. 1 Gartsherrie	2 10 0
" Coltness	2 12 0
" Clyde	2 8 0
" Govan	2 7 8
Bars, Welsh, f.o.b. Wales	5 7 5
Plates	6 7 8
Bars, Staffordshire, at works	5 7 8
Sheets	6 12 6
Plates	6 5 0
Hoops	5 15 0
Ship plates, Middlesborough	5 2 8
STEEL: English spring	12 10 0
" cast	44 0 0
" Rails at works, according to section	...	4 5 0	5 15 0

	Lead	£ s. d.	¢ s. d.
Spanish or soft foreign	...	11 5 0	11 6 3
English pig, common	...	11 7 6	11 10 0
" L.B.	11 17 6
" sheet and bar lead	12 7 6
" pipe	14 0 0
" red	17 10 0
" white	17 10 0
" patent shot	14 15 0

	Spelter	£ s. d.	¢ s. d.
Silesian ordinary brands	18 17 6
" special brands	17 2 6
English Swansea	17 12 6
Sheet Zinc	...	19 10 0	19 16 0

	Antimony	£ s. d.	¢ s. d.
Antimony	...	29 0 0	29 10 0

	Quicksilver	£ s. d.	¢ s. d.
Flasks, 75 lbs. warrants	...	6 12 0	6 12 6

	Manganese	£ s. d.	¢ s. d.
Ore, c.i.f., U.K. ports	...	0 0 11	0 1 1

	Aluminium	£ s. d.	¢ s. d.
1st quality, 50 per cent. and upwards	...	0 0 10	0 1 0

	Nickel	£ s. d.	¢ s. d.
2nd " 47 per cent. to 50 per cent.	...	0 0 9	0 0 11

	Aluminium	£ s. d.	¢ s. d.
3rd " 40 " 47 per cent.	...	0 1 4½	0 1 6

	Nickel	£ s. d.	¢ s. d.
98-99½ per cent.	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-99 per cent. guaranteed	...	0 1 2	0 1 4

	Nickel	£ s. d.	¢ s. d.
98-			

ABREVIATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—*As*, Antimony; *A*, Arsenic; *Bl*, Blende; *Bz*, Borax; *C*, Copper; *D*, Diamond; *G*, Gold; *L*, Lead; *Le*, Lead; *M*, Manganese; *N*, Nitrate; *P*, Phosphate; *Q*, Quicksilver; *R*, Rub; *S*, Silver; *St*, Sulphateless; *Sw*, Sulphur; *T*, Tin; and *Z*, Zinc. In the "Amount of Share" column of British Mines, the name of the mine is conducted on the "Book" principles; in the "Head Office" column of African Mines, the name of the mine signifies that they are subject to the Limited Liability Law of the South African Republic, the name of the head office signifies that the address given is not that of the head office; and *f*, follows.

* The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

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AFRICAN MINES—(Continued).

Name.	Closing Price, Oct. 2, 1895	Closing Price, Sept. 25, 1896.	Amt. of Share	When last X'd and Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Rigel..... G	2½ 3	2½ 3½	1 0	rta Aug 10 '95	1 0 0	160,000	Rand.....	88, Graham Hg., 8 Old Jewry
" Deep .....G	1½ 1½	1½ 1½	1 0	—	1 0 0	199,000	Heidelberg	Winchester House, 8, Princes street
Forth Charterland .. Randfontein	5/ 7/ nom	5/- 7/- nom	1 0	—	1 0 0	80,000	—	—
Mourse Deep.....	4¼ 5¼	5 5¼	1 0	—	1 0 0	235,000	Rand.....	122, Bishopsgate-st.
Leana Consolidated	1½ 1½	1½ 1½	1 0	—	1 0 0	—	Wtbg Lyn	13, Austin Fr.
" Development	¾ ¾	¾ ¾	1 0	—	1 0 0	50,000	Heideberg.	"
" M. nerals ...	¾ ¾	¾ ¾	1 0	—	1 0 0	5,000	"	"
Orange F.S.E....	3¼ 3¼	3¼ 3¼	1 0	/8 Apr., '95, 96	1 0 0	284,000	Orange F.S.	10, Moorale-stre
Prion (New)..... G	¾ 1	¾ ¾	1 0	10½ Aug. '95	1 0 0	36,000	Rand.....	8, Old Jewry.
Karl Central... G	1¼ 1¼	1¼ 1¼	1 0	—	1 0 0	137,750	Transvaal .	120, Bishopsgate-st
Karl's Mozambik	1¼ 1¼	1¼ 1¼	.0/	rta Mar	0 10 0	60,000	S. E. Africa	Broad S. Avenue
Gigg Peak..... G	1½ 1½	1½ 1½	1 0	—	0 19 0	200,000	Swaziland.	4, S. Can.
Jorge's Randfontn.	1¼ 1¼	1¼ 1¼	1 0	2/ Feb. 13 '96	1 0 0	457,500	Rand.....	1, Bank Building,
Steinheim..... G	¾ ¾	¾ ¾	1 0	—	1 0 0	389,750	Potchefst.	19, Bury-st., E.C.
Princess Estate G	2¼ 2¼	2¼ 2¼	1 0	—	1 0 0	29,000	Rand.....	34, Curahill, E.C.
Land Central Ore	1½ 1½	1½ 1½	1 0	25 p. Aug. '95	1 0 0	115,000	—	8, Princes-street,
Central Mines..... G	3 3½	2½ 2½	1 0	x June 14, '96	1 0 0	2,000,000	Rand.....	1, Bank Building
Gold-Rhodesia Ex	29½ 2½	28½ 28½	1 0	10 p.c. Oct. '95	1 0 0	332,700	R&R Rhodes	127, Bishopsgate- 145.
Rhodesia Ex & Dr.	5½ 6	5½ 6	0	—	1 0 0	57,000	—	—
Robinson (S.) Bank	5½ 6	5½ 6	4 0	1/ Apl. 15, '96	4 0 0	700,000	Mt & Mash'	15 & 16, Geo. St.
" Deep	6½ 6½	6 9¼	1 0	—	1 0 0	500,000	S. Africa ..	8, Princes-street
" Diamond	1½ 1½	1½ 1½	1 0	—	1 0 0	300,000	W'n R' End	129, Bishopsgate
" Gold	6½ 6½	6½ 6½	5 0	5/ July 20 '96	5 0 0	350,000	Kasi Valley	6, Princes Street
" Randfntn.	1½ 1½	1½ 1½	1 0	—	1 0 0	217,000	M. R' land	24, Austin Fr.
Roodepoort Deep	2½ 2½	2½ 2½	1 0	—	1 0 0	170,000	Rand.....	8, Princes-street.
Roodepoort Un. G	4½ 4½	4½ 4½	1 0	2/ July 30 '96	1 0 0	100,000	"	8, Old Jewry, E.C.
Seas Deep.....	4½ 5½	5 5½	1 0	—	1 0 0	300,000	Warford-court.	30-31, S. Wilek's-lane
Other block.....	¾ ¾	¾ ¾	1 0	—	—	—	M. R' land	59, Bishopsgate-st
Sticks Estates	1½ 1½	1½ 1½	1 0	2/ June 12 '96	1 0 0	225,000	—	19, Bury Street.
Helen's Devel.	2½ 2½ nom	2½ 2½ nom	1 0	—	1 0 0	47,350	Africa ..	13, B. Helen's Pl.
Salisbury New ..	3½ 4	3½ 4	1 0	—	1 0 0	95,000	Lydenburg	80, Oreston l.
Seba..... G	1½ 2 d	1½ 2 d	1 0	1/- Sept. 30 '96	1 0 0	850,000	—	16, B. Helen's place
Simmer & Jack.. G	8½ 8½	8 7	5 0	2/ Aug 14 '95	5 0 0	940,000	Rand.....	8, Old Jewry.
A GoldTrust-New	7½ 7½	7½ 7½	1 0	7/6 Jan 25 '96	1 0 0	250,000	S. Africa ..	—
South West Rand	9½ 9½	9½ 9½	1 0	—	1 0 0	158,000	Rand.....	Winchester House
Spitak (New) G	1½ 1½	1 1½	1 0	—	1 0 0	99,070	Lydé burg	15, Bishopsgate-s.
Stanhope	1½ 1½	1 1½	1 0	1/- Sept 30 '96	1 0 0	34,000	Rand.....	56, Graham Hg.
Stratfield R... G	2/ 2/6	2/ 2/6	1 0	—	1 0 0	220,000	Zoutpan bg	D'shawold Ho.
Tail Concessions ..	1½ 1½	1½ 1½	1 0	rta Jy. 22 '95	1 0 0	392,000	—	Graham Home
Ans. Coal Trust ..	1½ 1½	1½ 1½	1 0	1/-Apr. 29, '96	1 0 0	439,985	Rand.....	Broad-A. House
" Consolidated	1½ 1½	1½ 1½	1 0	—	1 0 0	485,131	Transvaal	120, Bishopsgate-
" Est. & Dev.	1½ 1½	1½ 1½	1 0	—	1 0 0	422,000	—	10, New Broad-st.
" Gold Fields	2½ 2½	2½ 2½	1 0	5/- Apr. 15 '96	1 0 0	185,000	S. A. R.....	120, Bishopsgate-s.
" Land.....	7½ 7½	7½ 7½	1 0	—	1 0 0	79,915	Transvaal .	128, Abchurch Lane
esury..... G	2¼ 2¼	2½ 2½	4 0	12½ Sep '94	4 0 0	138,000	Rand.....	Warford Court.
ited Exploratn.	1½ 1½	1 1½	1 0	—	1 0 0	250,000	—	129, Bishopgate St
ivry Reef... G	1½ 1½	1½ 1½	1 0	/6 June 16 '96	1 0 0	45,000	Transvaal .	110, Canon-street
Langlaagte(N)G	¾ ¾	¾ ¾	1 0	—	1 0 0	146,000	Rand.....	85, Graham Hg.
Mines Buifd. D	1½ 1½ nm	1½ 1½ nm	1 0	1/ Aug. 28. '96	1 0 0	125,000	Kimberley	120, Bishopgate
Pioneer.....	¾ ¾	¾ ¾	1 0	—	1 0 0	75,000	De Knap...	16, S. Helen's-pl.
an Ryn..... G	4 4¼	4 4¼	1 0	1/- Jan. 18 '96	1 0 0	160,000	Rand.....	18, St. Swithin's-l.
" North	¾ ¾	¾ ¾	1 0	—	1 0 0	118,091	—	—
" West.....	2 2¼	2 2¼	1 0	—	1 0 0	120,000	Rand	"
enterskroon	¾ ¾	¾ ¾	1 0	—	1 0 0	125,000	Woodward	8, Old Jewry
ate.....	¾ ¾	¾ ¾	1 0	—	1 0 0	130,030	Rand	Winchester House
illage Main Reef	5½ 5½	6 6½	1 0	rta June 26 '96	1 0 0	177,000	8, Old Jewry	8, Old Jewry
ogelstruis Estate	4¼ 4¼	4¼ 4¼	1 0	—	1 0 0	207,500	"	Winchester House
" Cons. Deep ..	2¼ 2¼	2½ 2½	1 0	—	1 0 0	327,000	"	16, Geo. St. Ma.
assau	1½ 1½	1 1½	1 0	—	1 0 0	190,000	Gold Coast	147, Cannon-street
emmer..... G	8½ 8½	8½ 8½	1 0	10/ Apr. 28 '96	1 0 0	55,000	Rand.....	19, Bury-street, E.
estern Rigel.....	¾ ¾	¾ ¾	1 0	—	1 0 0	207,000	Main Reef	Suffolk House.
est Rand..... G	1½ 2½	1½ 2½	1 0	—	1 0 0	240,000	Rand.....	13, Geo. St. Ma.
iloughby's Con.	1½ 1½	1½ 1½	1 0	—	1 0 0	700,000	Mashonaland	3, Copthall-bldg.
wateratrand G	8½ 8½	7½ 7½	1 0	—	1 0 0	250,000	Rand.....	19, Bury-st., E.C.
oluhuter..... G	8½ 8½	6 6½	1 0	rta Aug 26 '94	1 0 0	130,000	"	Warford-court.
orocroster..... G	4¼ 4¼	4½ 4½	1 0	1/- Aug. 28 '96	1 0 0	90,727	Rand.....	8, Old Jewry.
mbesia Explora.	2½ 2½	2½ 2½	1 0	—	1 0 0	65,000	Transvaal .	30-31, Clements-l.

Basset	14/	15/		¾	%	1	0	—	1	0	63,000	Cornwall!	Redruth.
Blue HillsC7	1	1/8	1/	2/		1	*	Dec., '91	8	19 5	5,353	"	Camborne.
Carn Brear Tinet?	1/	2/	1/	2/		1	0	2/ Dec., '93	22	8 0		"	Carn Brear.
Devon Gawnen CA	10/	20/	15/	20/		1	0		2	15 0	25,000	Tavistock	, Finabury dms.
" " Gt Cons. CA	6/	10/	1¼	2½		5	0	1/8 May '95	1	0	10,240	Devon —	"
Dolcoath	7	6/	17/	17 ½		1	0	—	1	0	188,000	Cornwall —	Camborne.
" "	5/	7/	6/	6/		1	0	—	0	7 8	25,000	"	"
Draughalls CTN	3	7/8	6/	1/		5/		1/8 Sept., '94	0	2 0	81,856	Cornwall	" Dashwood House.
East Pool	19/	21/	1¼	1¾		4	0	8/ Apr., '92	0	9 9	8,400	I. of Man	Hogan.
Great Lacey.....A7	1¼	2¼	1¼	1¾		4	0		0	0	15,000	"	Gresham House.
Halkyn	10	11	10	11		1	0	2/8 June 26/95 + June 11/96	1	0	10,700	Fint.....	Obeater.
Isle of Man	5¾	6¾	5	5¾		5	0	1/6 Nov., '94	8	15 6	1,000	I. of Man	" Truro.
Kilbrethre.....I	4/	5/	4/	5/		6	0	1, 6 Apr. 19 '95	0	0	30,000	Finabury-plate	"
Lendhillis.....L	1	1¾	1	1¾		0	0	4/- Nov., '94	1	1 8	3,500	Lansarksh.	30, Finabury-plate
Levant.....C7	3¼	3¼	3	3¼					2	5 5	18,000	S. Agnes, Gl.	Penzance.
Polberro	4/	5/	2	2 ½				3/8 Aug., '93	7	13 9	8,123	Cornwall	37, Walbrook.
So. Condurru TC	1/	2/	1	2 ½							8,123	Cornwall	20, Great St. Helen's
" Croisy TA	¾	¾	¾	¾							5,769	"	Noel, Cornwall.
Weardale	—		8/9			1	0	1/3 Oct., '90	1	10 0	80,000	Durham...	3, Lombard-street
West Kitty.....J	1½	2	1½	2				2/- Dec., '94	1	2 0	8,000	Cornwall —	W. Walbrook.
Whetn AgrsJ 6	1/	2 ½	1/6	2 ½				2/8 Feb., '95	23	15 2	1,000	"	Redruth.
" Friendly..?	1/	1 ½	1/	1 ½							1,000	"	2, Cephalid Edge.
" Gravelly ?	2	4	5	5¾				3/- Nov 28 '95	18	2 0	6,010	"	1, Union-cours., E.
" Kitty.....?	2	2/	5/8	6/				3/- Mar., '88	4	5 8	* 90	"	Truro.
" Metal & F.?	3	4	3/5	4				—	0	3 0	£3, 100	"	14 Broad street A.

Bahaghat Mysore	G	2/3	2/9	2/6	3/6	1	0	—	1	0	0	100,000	India	6-7, Queen-street
Burma Ruby	H	1/2	1/2	1/2	1/2	1	0	—	0	1	0	298,370	Burmah	Buffalo House 10
Champion Reef	G	7/8	3/4	7/8	3/4	1	0	9/6 Aug 13 '96	1	0	0	111,645	India	6-7, Queen-street
Coliar Central	G	1/6	1/6	1/6	1/6	1	0	—	1	0	0	160,000	"	Dashwood Ho. 10
Coromandel	G	2/3	2/3	2/3	2/3	1	0	—	1	0	0	120,000	"	6-7, Queen-st. 10
Gold Field Mysore	G	1/4	1/4	1/4	1/4	1	0	1/- July '92	1	0	0	220,000	"	6-7, Queen-street
Kader Mysore	G	7/8	7/8	6/8	7/8	5/	0	—	0	0	0	4,000	"	Capitall House, 6
Kempinkote GdFd	G	1/6	2/6	1/3	1/3	5/	0	—	0	0	0	575,710	India	6-7, Queen-street
Mysore	G	8/16	8/16	8/16	8/16	1	0	6/ July 16 '96	1	0	0	248,354	"	13, Cap. Hall Arms
" Harnhall	G	1/6	1/6	1/6	1/6	1	0	—	0	1	0	100,000	"	6-7, Queen-street
" Reefs	G	8/9	8/9	8/8	8/8	1	0	—	0	1	0	125,007	"	13, Cap. Hall Arms
" West(N)	G	1/2	1/2	1/2	1/2	1	0	cts. Jan. 16 '96	0	1	0	150,000	"	6-7, Queen-street
" Wynned G	G	1/2	1/2	1/2	1/2	1	0	cts. Jan. 16 '96	0	1	0	127,432	"	13, dit. Wm. bank
Nile Feels	G	1/2	1/2	1/2	1/2	1	0	—	0	1	0	125,000	"	6-7, Queen-street
Nundwroon	G	2/3	2/3	2/3	2/3	1	0	—	0	1	0	250,000	"	6-7, Queen-street
Goregam (D.O.)	G	1/2	1/2	1/2	1/2	1	0	2/- June 26 '96	1	0	0	200,000	"	6-7, Queen-street
" (10 2/3 Pref.)	G	3/4	3/4	3/4	3/4	1	0	2/ July 16 '96	1	0	0	145,000	"	6-7, Queen-street
" (10 2/3 Pref.)	G	3/4	3/4	3/4	3/4	1	0	4/ July 16 '96	1	0	0	167,011	"	6-7, Queen-street
Pauang Kabang	T	1/6	1/6	1/6	1/6	1	0	—	0	1	0	12,389	"	6-7, Queen-street
" Corp.	G	1/2	1/2	1/2	1/2	1	0	—	0	1	0	260,000	Malay Po.	13, Jeffry's & B.
Yerrakonda	G	1/2	1/2	1/2	1/2	1	0	—	0	1	0	167,491	Mysore	6-7, Queen-street

AUSTRALIAN AND NEW ZEALAND MINES—(Continued).

Anglo-Chilian Fl.N	5 1/2	5 1/2	5 1/2	5 1/2	10 0	7/0 Feb. 27 '96	10 0 3	35,000	Antofagat.	123, Bishops-st. W
" 6% Rydst.MB	94 94	107 110	100 0	6 1/2	100 0	6 1/2 July 1 '96	100 0 0	£200,000	"	"
Argen.Concessions	1/3	9/8	1/6	1/2	2/	—	0 2 0	150,000	S. Luis ...	3 & 5, Queen Street
Caratal.....G	1/3	1/8	-1/3	-1/8	2/6	—	0 2 6	1,330,000	Venezuela	37, Moorgate-st. E.
Caylloma.....S	3/4	1	1 1/2	1 1/2	5	1/- Apr. 94	2 0 0	125,000	Peru	52, Leadenhall street
Coion.....G	3 1/2	1/9	1 1/2	9/1	2 0	2/6 Dec. 16 '95	0 0 4	300,000	Colombia	5, Corral-bldg., S. E.
Colorado Nit.....N	3 1/4	1	3 1/4	1	5 0	1/- Jy 26 '95	1 0 0	32,000	Chili	13, King-st., Liverpool
Colombian Hy.....G	3 1/2	7 1/2	3 1/2	7 1/2	1 0	2/ May 28 '96	1 0 0	75,000	Colombia	10, Blomfield-street
Coplapo.....C	2 1/2	2 1/2	2 1/2	2 1/2	2 0	—	2 0 0	100,000	Chili	Dashwood House, B.
Darien "A".....G	6 1/2	6 1/2	6 1/2	7 1/8	7 1/8	—	1 0 0	49,553	Colombia	Manchester.
" "B".....G	7 7 1/2	7 7 1/2	7 7 1/2	8	1 0	x.w. Apr 29 '96	1 0 0	30,000	"	"
El Callao.....G	3/4	3/4	3/4	3/4	5 0	9 1/2 Feb. '94	5 0 0	257,600	Venezuela	5, Bishopsgt.-st. W
Frontino & B.....G	1 1/2	1 1/2	1 1/2	1 1/2	1 0	9d. July 15 '94	1 0 0	128,662	Colombia	184, Gresham House
Gienrock.....G	1 1/2	1 1/2	1 1/2	1 1/2	1 0	—	1 0 0	199,948	Arg. (& I.)	3-5, Queen-street, E.
Guadalupe.....GS	8/8	5/	9/6	5/-	1 0	—	1 0 0	120,000	Honduras	1A, Union ct. Old Brd
Java.....G	1 1/2	2/2	1/8	1/6	2/-	—	0 2 0	105,769	Nicaragua	139, Cannon-street.
Lagunas.....A	2 1/2	2 1/2	2 1/2	2 1/2	5 0	15 p.c. Dec. '94	5 0 0	120,000	Tarapaca	3, Gracechurch-st.
Lautaro.....N	5 1/2	8	5 1/2	6	6 0	5/- June 28 '96	5 0 0	110,000	Chili	70, "
Liverpool.....N	7 1/2	8 1/2	8	8 1/2	8 0	15/- May 14 '96	8 0 0	22,000	Liverpool.	"
London Nit.....N	2 1/2	2 1/2	2 1/2	2 1/2	3 0	3 1/4 Nov. '91	5 0 0	10,000	"	3, Gracechurch-st.
" Nit.(Pref.)	2 1/2	4	2 1/2	4	8 0	4 1/2 Nov. 28 '95	5 0 0	22,000	"	"
Macle.....N	-1/2	1/8	1/3	1/6	2/	—	0 2 0	200,000	Peru	11, Old Broad-st. N.
New Julian.....N	—	—	—	—	—	—	—	—	Tarapaca	50, Lime-street, N.
" Tamarugal N	5 1/2	5 1/2	5 1/2	5 1/2	1 10	1s. Dec. '94	1 10 0	135,000	"	"
" 8 % Cum Pref	5 1/2	5 1/2	5 1/2	5 1/2	1 10	8 p.c. Feb. '95	1 10 0	130,000	"	"
" 6 p.c. Debs ...	7 1/2	8 1/2	7 1/2	8 1/2	100 0	6 p.c. Feb. '96	100 0 0	£260,000	"	"
Orta.....G	1/8	1/8	-1/8	—	1 0	1/- April '98	1 0 0	30,000	Colombia	12, Blomfield-street
Ouro Preto.....G	—	—	—	—	1 0	1/- Feb. '98	1 0 0	80,000	Brazil	6, Queen-street-place
Pae. & Jaspampa N	3/4	1	3/4	1	5 0	4/- May, '95	5 0 0	72,000	Tarapaca	3, Gracechurch-st.
Phoenix.....G	1/6	1/-	-1/3	-1/2	10/-	—	0 8 0	400,000	S. Luis ...	3 & 5, Queen Street
Quebrada.....C	3/4	3/4	3/4	3/4	3 0	5 % Mar. '92	3 0 0	241,956	Venezuela	34, Nicholas Lane.
Rosario.....N	4 1/2	5 1/2	4 1/2	5 1/2	5 0	3/- Aug. 13 '98	5 0 0	120,000	Chili	7 1/2 Old Broad-street
" (5 % Deb.)	102	105 xd	104	107	100 0	5 % Oct 1 '96	100 0 0	£475,000	"	"
" Hu' Db Scrp	103	108	103	106	100 0	5 % July 1 '98	100 0 0	£200,000	"	"
St. John del Rey G	3 1/2	7 1/2	3 1/2	7 1/2	1 0	x.rta Nov 13 '95	1 0 0	327,850	Brazil	Finsby Ho., Blm'd
San Donato.....N	3 1/2	1 1/2	3 1/2	1 1/2	5 0	2 1/2 May 24 '95	5 0 0	38,000	Chili	12, King-st., Liverpool
" Jorge.....N	4 1/2	5 1/2	5 1/2	5 1/2	5 0	7 1/2 May, 29 '96	5 0 0	75,000	"	9, Gracechurch-st
" Pablo.....N	1 1/2	1 1/2	1 1/2	1 1/2	5 0	5/- Oct. 30 '95	5 0 0	32,000	"	"
" Sebastian.....N	3 1/2	1	3 1/2	1 1/2	5 0	4 1/2 July '98	5 0 0	29,000	"	Dashwood House, B.
Santa Barbara.....G	3 1/2	5 1/2	3 1/2	5 1/2	10/	1/3 Dec. '98	0 10 0	80,000	Brazil	Liverpool
" Milena.....G	3 1/2	3 1/2	3 1/2	3 1/2	5 0	6/- Nov. 15 '94	5 0 0	22,000	Tarapaca	3, Gracechurch-st.
" Mita.....N	2 1/2	4 1/2	2 1/2	4 1/2	5 0	10/May 29 '96	5 0 0	22,000	Chili	Dashwood House, B.
Tolima "A".....G	4 1/2	5 1/2	4 1/2	5 1/2	5 0	8/- Mar. 17 '98	5 0 0	14,000	"	10, Finsbury-circus
" "B".....G	3 1/2	4	3 1/2	4 1/2	5 0	5/- Mar 12 '96	5 0 0	5,000	"	"

SEPTEMBER, 1896.

TIN:

(From Messrs. A. Strauss and Co.'s Circular for September, 1896.)

	Aug 31, 1898.	Sept. 30, 1898.	Sept. 30, 1898.	Sept. 30, 1897.
Straits and Australian spot	Tons	Tons.	Tons.	Tons.
Ditto ditto landing	17,831	13,680	11,273	7,000
Straits, afloat	630	725	538	896
Australian, afloat	3,350	3,775	3,300	3,000
	540	442	894	754
	22,401	23,622	15,503	13,435
Barca, on Warrants.....	1,068	2,536	1,373	1,471
Billiton, spot	1,253	1,352	1,373	1,750
Ditto afloat.....	1,150	980	660	1,000
Straits, spot in Holland	1,055	857	537	610
Ditto afloat to Continent	1,390	1,375	600	1,300
Stored secretly in Holland in 1894.....	807	807	2,000	1,500
	29,924	315,09	23,449	21,132
Total afloat for United States	2,350	2,755	3,900	2,170
Estimated stock in America.....	560	390	5,791	2,065
Total	32,834	34,654	31,139	24,313
Prices of Straits and Australian.....	£59 7 6	£57 15 0	£65 2 6	£71 2 6
Deliveries during the month in London	1,774	1,268	1,509	1,444
Ditto ditto Holland	1,107	409	771	540
	2,881	2,076	2,280	1,984

Shipments during the month from Straits to London ... 2,657 Tons

Shipments during the month from Straits to London ...				2,656 Tons
33	39	33	Australia to London ...	275 "
39	39	35	London, Havre, and Holland to America ...	785 "
39	39	30	Straits to America ...	1050 "
30	38	28	Australia to America ...	100 "
38	39	33	Straits to Continent ...	730 "

	During 12 months ending Sept. 30, 1896.	During 12 months ending Sept. 30, 1895	During 12 months ending Sept. 30, 1894	During 12 months ending Sept. 30, 1893	During 12 months ending Sept. 30, 1892
Shipments from Straits to London ...	25,627	27,652	27,577	24,170	19,323
Shipments from Straits to America ...	11,903	5,750	6,310	6,315	9,940
Shipments from Straits to Continent ...	11,865	19,342	11,868	7,075	2,395
Ditto from Straits to Europe and America ...	49,492	45,724	45,755	37,560	33,716
Shipments from Australia to London ...	3,634	3,489	4,527	4,507	4,263
Shipments from Australia to America ...	800	850	800	330	780
Deliveries of Tin in London... ..	18,547	16,889	18,624	17,200	15,516
Deliveries of Tin in London and Holland ...	29,321	25,073	26,844	24,876	23,027
Ditto in London, Holland, France, and U.S.	59,919	54,634	54,772	50,712	45,825

Prices:	Straits and Australian spot	...	...	...	\$57 15 0	three months	...	...	\$59 10 0
	English Common ingots	...	...	...	61 0 0	refined	...	...	63 0 0
	Danca	...	...	...	\$8 10 0	Bullion	...	...	\$8 0 0

MANCHESTER.

EDINBURGH

The London committee of the NEW KLEINFONTEIN COMPANY (LIMITED) have decided to extend the date to October 8 for the deposit of share warrants with the London office, Winchester-house, or in Paris, with the Compagnie Française de Mines D'Ore et D'Exploration, 120, Rue Taibout, Paris, by those shareholders who wish to claim their rights on the new issue.

BRITISH GUIANA'S GOLD INDUSTRY.

The R.M.S. *Solest*, which left Georgetown on the 3rd ult., took gold to the value of \$78,672.08. The shippers were:—

Colonial Bank ...	...	1287 15 3
British Guiana Bank ...	...	3133 12 1

Total ... 4421 7 4

The following are the returns of gold entered at the Department of Mines for the weeks ending:—

	August 29.	September 5.
	Oz. dwt. grs.	Oz. dwt. grs.
Barima...	114 15 0	125 6 18
Brima...	635 19 6	563 12 16
Cuyuni...	374 1 0	457 15 15
Demerara...	367 4 16	636 15 0
Esequibo...	4 0 14	39 18 0
Groote Creek...	114 13 20	...
Maxaruni...	214 11 6	482 12 22
Pataro...	193 5 13	251 5 16
Pareni...	...	...
Total...	2018 11 3	2606 6 15

Report of gold from January 1 to September 14:—

	Oz.	dwt.	grs.	at \$1,354,962.75
1896 ...	76,159	11	1	at \$1,354,962.75
1895 ...	78,838	3	17	at \$1,397,098.94

EVERYONE is waiting now for some development in the a airs of East Pool and Wheel Agar, the lease of the latter mine having expired on Tuesday. The rumour that the Agar shareholders intend applying for a renewal is not generally credited, though it has never been denied, and we do not see how a new lease could be granted them if Lord Robertes is under the obligations to East Pool which have been alleged. In any case it may be certain that any new lease would only be granted on the strict condition that the mine should be worked, and we doubt whether East Pool will be so very anxious, with the price of tin what it is, to undertake to immediately fork both the mines. But in this matter too much secrecy has been observed, except when it has suited one side or the other in a tactical move.

WHILE on the western side of the Tamar mining is still suffering from the profound depression consequent upon the continued lowness of the price of tin, there are some hopes that the industry on the Devon side of the river may undergo a partial revival. Copper is no longer the ministry of the Devon mines—it has been superseded by arsenic—which is now fetching a fairly remunerative figure. Among other companies which may be expected to profit by the improvement in the price of this mineral is Gawton, the ordinary general meeting of which was held on Wednesday, at Tavistock. Additional appliances for the manufacture of arsenic have been erected, which are expected to materially increase the capacity for converting the produce of the mine into refined arsenic and with greater expedition. The directors are confident that they have a very valuable property, and striking proof that their confidence is shared by one at least of the largest shareholders was afforded by Mr. T. W. Field's offer to take up the shares of any shareholder who was sick of his bargain. Mr. Field suggested several improvements which would result in a considerable saving of time in getting the mundie to the surface, and the Chairman afterwards announced that these would be adopted by the directors. The manager hopes to double the monthly output during the ensuing year, and if this estimate proves to be well founded Gawton ought soon to swell the too scanty list of dividend-paying British mines.

REPORTS FROM THE MINES.

BRITISH MINES.

BASSET.—Manager's report, dated September 25:—The 230 and west of Lyle's shaft has reached the south leader of the flat lode. It has a promising appearance, worth for tin 28 per fathom. The 230 crosscut north for the 14 fathoms driven has passed through capels and branches, and we are still hoping to find something better further on. The 230 and east on Basset lode is worth 25 per fathom, driving at 24 per fathom. The 270 and west of rise is producing stamping work for tin, driving at 24 per fathom. The 210 and west of winze is worth 25 per fathom, driving at 21 per fathom. The 210 and east of winze is poor at present, driving at 15 10s. per fathom. The 200 and is driving by boring machinery at 27 per fathom. The leader of the lode at this point is standing to the south of the end. A winze sinking below the 200 fathom level on Basset lode is worth 21 per fathom. Sinking at 23 10s. per fathom. A winze sinking below the 200 fathom level on flat lode is worth 27 per fathom. Sinking at 27 per fathom. A rise in the back of the 200 fathom level is rising at 25 per fathom. Lode poor. We are opening up some good stopping ground west of Lyle's shaft on Basset lode, which have enabled us to increase our returns of tin.—Dauba's. The 170 and west is driving by boring machinery at 27 per fathom. Lode still poor. The 170 and east is worth 21 per fathom, driving at 23 10s. per fathom.—Marriott's shaft is out down to the back of the 30 fathom level. At this point we have intersected the Basset lode, and we are hoping to find the ground to the south of the lode solid enough for the foundation of our brickwork. We are pushing on the building of our new engine house with all possible speed. Our main adits are all opened up and in first-class condition. We have put in concrete dams in all the old disused shafts, which formerly let down large quantities of water in the mine after floods. I have taken on Captain William Thomas, late of West Frances, as surface agent to look after the machinery, &c.—William James.

DEVON GREAT CONSOLS.—October 1: Wheel Anna Maria, engine shaft. In the slope in the bottom of the 110 fathom level the lode will yield 8 tons of mundie per fathom. The slope in the back of the 111 fathom level east the lode is yielding 4 tons of copper and 3 tons of mundie ore per fathom.—Field shaft, south lode. The slope in the bottom of the 130 fathom level west is producing 7 tons of mundie per fathom. In No. 2 slope in the bottom of the 150 fathom level west the lode is yielding 10 tons of mundie per fathom.—Wheel Josiah, Field shaft, south lode. The slope in the back of the 130 fathom level east is worth 6 tons of mundie per fathom.—Richard's shaft. In the slope in the back of the 130 fathom level west there is a productive lode yielding 14 tons of mundie per fathom.—Hitchin's shaft. In the slope in the bottom of the 115 fathom level west there is a good lode yielding 10 tons of mundie per fathom.—Agnes shaft. The slope in the bottom of the 70 fathom level is yielding 5 tons of copper and mundie ore per fathom.—Wheel Emma, Thomas' shaft. In the slope in the bottom of the 100 fathom level the lode is yielding 12 tons of mundie per fathom. In No. 2 slope in the bottom of the 100 fathom level there is also a productive lode yielding 18 tons of mundie per fathom. The slope in the back of the 100 fathom level east will produce 7 tons of mundie per fathom. In No. 2 slope in the back of the 100 fathom level east there is a good lode, yielding 18 tons of mundie per fathom. In No. 3 slope in the back of the 100 fathom level east the lode will produce 8 tons of mundie per fathom.—Inclined shaft. The slope in the back of the 162 fathom level east is producing 4 tons of mundie and 1 ton of copper per fathom. In No. 2 slope in the back of the 162 fathom level the lode is yielding 3 tons of copper and 4 tons of mundie ore per fathom. In the slope in the back of the 100 fathom level west the lode will yield 5 tons of mundie ore per fathom.—New shaft. New south lode. The slope in the back of the 130 fathom level east will produce 8 tons of mundie per fathom. In No. 2 slope in the back of the 130 fathom level east the lode is also worth 8 tons of mundie per fathom.—Watson's engine shaft. The slope in the back of the 50 fathom level east will yield 4 tons of mundie per fathom. All the pumping machinery throughout the mine is in full work, and at Watson's the water is drained to the 112 fathom level.—(Signed) W. Chinn.

WHEAT MEAL AND FLOW.—Progress report dated September 25: Wheat Meal.—Since our last report, we have continued the drainage we toward on the lode from Watson's shaft 27 fathoms below adit and we are now in 294 feet from the shaft. The lode has decidedly improved; it is 2 feet 6 inches wide and yields a fair quantity of tinny stuff, keeping 4 stamps going most of the time. On the south lode, the tributaries are finding a little good stuff in their stopes. The flow is still quite dry, but we are working a little tin by means of the water raised from the mine at Watson's shaft, and the springs are now beginning to rise.—Blen B. ridge: Here we are getting a little tin but we are still greatly in need of water.—Wheel Fortune: Tin stonebreaker and p-stone engine at work. A little good stuff is being raised from the quarry, but shortness of water is still a great drawback. All our machinery is in excellent order, and we shall considerably increase our returns as soon as we have more water.

WEARDALE LEAD.—Report on Weardale Company's mines for the week ending September 25: Groverake, Sinking pump from 20 fathom level. We have crossed to rise.—Blen B. ridge: Here we are getting a little tin but we are still greatly in need of water.—Wheel Fortune: Tin stonebreaker and p-stone engine at work. A little good stuff is being raised from the quarry, but shortness of water is still a great drawback. All our machinery is in excellent order, and we shall considerably increase our returns as soon as we have more water.

MISCELLANEOUS.

BARIMA GOLD.—Report of the work done on the company's mines since March 12 last:—Ref A. From intersection of main shaft crosscut with the reef A working level on drift has been driven towards north-east a distance of 185 feet, the reef showing fairly well the whole way, and giving an average thickness of about 17 inches. Veins approximately 15 ounces per ton. This is at a depth of 145 feet from the surface at collar of main shaft. The whole of this level is very thoroughly and securely timbered and lagged, 9 feet by 9 inches timber and 2 inches lagging, the most durable timbers having been selected for the purpose. The size of under timbers is 3 feet 6 inches top, 4 feet 8 inches bottom, 6 feet 6 inches high, this being amply sufficient for practical working purposes and putting in tramway, which is being done. A winze 65 feet deep on a level of reef and 45 feet deep from main shaft connects this line to the old Farragher tunnel above. The reef averages 25 feet solid quartz all the way down to bottom. The quartz is being stoped out and milled. An opening 21 feet by 8 feet exposes the reef nearly 3 feet thick, and shows free gold. Much headway cannot be made until steam hoist is mounted at collar of main shaft. The winze is timbered and lagged all round with timbers of 9 feet by 8 inches placed 4 feet apart lagging of 2 inches ballast. All the ore has been stoped out from mouth of Farragher tunnel to surface and p to within 12 feet of winze, and higher surface stoping is still being con-

tinued towards the main shaft, in some places the reef being 4 feet of compact quartz. Near blacksmith's shop on ap-x of reef A some ore has been got out, but work is at present suspended so that reef B which parallels it at a distance of 35 feet on the hanging wall can be stoped out, just as not to bring undue weight on the underlie. The main tunnel has been properly retimbered at times as the superincumbent weight has shown to be necessary. Reef B has turned out much better than expected, and has been freely drawn upon for ore. I judge, however, it is only a spur of Reef A.—Reef C. The new vertical shaft on this important work had to be shut down from seepage of water and lack of pumping apparatus, when a depth of 35 feet had been reached. The reef was 22 inches wide and in the bottom of shaft. The Fraser and Chalmers' hoist has been delivered at our water-side, and just at once as possible will be brought in and placed in working order on collar of shaft. Stoping has been done on a small scale from north east drift to grass on the sloping ground for about 65 feet horizontally from shaft. Much of this ore has been taken out by the original prospectors. Still the vein has improved remarkably, being 5 feet thick of nearly solid quartz, of the class that "shows up" well on the plates. A number of new sets (11) have been placed in old tunnel, denominated as "Harris' Western," to keep up circulation with the north-east drift.—Tram road. A tramroad was run from reef C shaft around the ridge to main tunnel on reef A, where a proper ore shoot was erected. This carries an automatic gate, the ore being charged directly into the cars either from Farragher's tunnel or main tunnel, and sent with facility to mill over an inclined plane at the rate of 45 to 50 tons per 12 hours when necessary, more than we require at present. The road is 2300 feet long and with grade up to divide, from which point the cars run by gravitation to ore shoot. The road is ballasted and kept in repair. We have had considerable bother and delay with the first mules which were sent up until shot. I think this can be avoided in future.—Mill. The last of the heavy machinery was duly delivered by the contractors about April 16, "less some minor parts" lost by the constant handling which have been supplied from Georgetown or made here, and the entire 20 stamp mill was ready for operation within the 60 days as I offered at the last general half-yearly meeting. I am glad to say in the words of the amalgamator sent out by the board, an entire stranger to me, that "she works like a bird." I would add, "she is open to criticism from competent critics." I myself am satisfied, and I must speak in the high terms of the high class machinery which has been furnished the Barima Company. Of the first crush 75% ounces of melted gold for 11½ days run for 23 stamp is already known. I have the honour to remit 841 ounces 11 dwt. to day from the second run of 23 1-2 days the ore being drawn from the presumably low grade of Reefs "A" and "B." I trust the results are satisfactory to the stockholders.—Loggia, &c. 1 store and office roofed with galvanised iron 24 feet by 50 feet. New 1 logie roofed with galvanised iron 14 by 33 feet. New 1 logie roofed with galvanised iron 15 by 40 feet. New 1 logie roofed with neponet 1: by 40 feet. New 1 logie roofed with neponet 14 by 50 feet. New 1 logie roofed with neponet 14 by 26 feet. New 1 logie roofed with neponet 14 by 26 feet; and two covers for shafts.—Woodcutting. New the mill and machinery is running a large amount of cordwood is necessary, causing, very naturally, an increase of force outside the mining element.—In mining. As the change has taken place from merely running drifts and sinking shafts, and the more interesting, from a commercial point of view, of stoping has taken its place, we are having a little trouble in educating the men to this class of work. Water has been scarce and the weather exceedingly dry.—A. A. Watson, manager.

DARCY ESTATES.—There is little doubt that the Westworth (Lacknow) Mine has lost for the time at least its run of gold. The reef has taken a very flat course, and is apparently going out of the Westworth in the D'Arcy Mine on the north east. The latter is an English company managed by Mr. Newman, M.P., and should by all accounts be amongst the coming things of this colony.—Extract from the Sydney Times, Sydney, August 23.

RANDT GOLD.—The following are extracts from a report by Mr. Perrier de la Bathie, civil engineer, E.C.P.S.I.F., dated March 15, on the company's property: 1st. Situation of the property, financial condition. The property of the Randt Gold Mining Company (Limited), is situated to the south of the Violet Consolidated, and possesses a superficial area of 46 claims. It belonged originally to the African Gold Properties (Limited), who made it over to the Randt Gold Mining Company in July, 1895, for the sum of £40,000, paid chiefly in shares. I have not been able to determine here what is the total capital of the company, nor its working capital. These are particulars which I think it will be easier for you to obtain in France.—2nd. Veins existing in the property. Works now on hand. Reefs existing on the property. The reefs which traverse the property belong to the Kimberley series, which in this region takes a north by south direction. The outcrop of the most important reef which is met with there crosses it in its northern part and trends towards the east, which, as may be seen from the sketch sent herewith, only gives a small number of a non-mineral claims, roughly about 43. The number of claims containing this reef is, therefore, about 43. At a mean of about 6 feet from this first reef there is a second of inferior thickness. Finally, more to the east, two other reefs have been recognised by their outcrop, but as yet no one has any certain idea as to their value. The only works that have been carried out as yet having been in the two first reefs, I have again called attention to these only. The first of these reefs has a considerable thickness, frequently attaining 10 to 20 feet. The rich portion, of from 2 feet 6 inches to 3 feet in thickness, is formed by the upper part of the reef, in the vicinity of the top or roof, and passes, in the works already opened, a value varying from 1 to 3 ounces. The lower part of the reef is very poor, and has merely a yield of 2 or 3 dwt. The upper part of the reef is characterised by the existence of large pebbles or silicious stones which form a bed of about 6 inches thick following the roof of the reef. As to the gold contained therein, it is often met with in the state of large particles of fair size. These are precisely the characteristics of the battery reef, which has hitherto passed for the richest reef of the Kimberley series, and it seems certain that this is really the reef with which we have to do. At about 8 feet from this reef there is another one about 2½ feet thick, which forms a sort of leader to the first bed. The existence of this leader again confirms the hypothesis which we have made when we stated that we had to deal with the battery reef, because it has been recognised in most of the properties where this reef is exploited. The yield of this upper reef varies from 2 ounces. The inclination of the first reef, the principal reef, is 40° near the surface, whilst that of the second is only 45°. But it should be observed that this reef has been cut by a succession of little faults; about 70 feet from the surface the two reefs take a distinctly parallel inclination and continue flattening more and more. Below we give a sketch showing a sectional view of the position and yield of these two beds in the upper portion where they have already been exposed.—Works in execution. A few prospecting works of but little importance had been effected on the property in 1887. These operations were resumed in the month of December, 1895, and since then an incline shaft, two vertical prospecting shafts, and one vertical working shaft have been sunk.—Incline shaft. Shaft No. 2 on sketch. This shaft at present attains a depth of 100 feet following the inclination. It is sunk in the upper part of the vein, and cuts through two or three faults of little importance, the chief effect of which has been to increase the incline near the surface. Its inclination or gradient is 45° at the present depth.—Vertical shaft No. 1. This shaft has an actual depth of 31 feet. It has again cut the two reefs at this depth, and a level will be driven along the lower reef, starting from the bottom of the shaft.—Vertical shaft No. 2. This shaft has just been commenced, and only attains a depth of 20 feet. It is still in the surface soil.—Vertical working shaft. This wide-mouthed shaft attains a depth of 40 feet. The work is now suspended owing to a scarcity of labour. It is situated about 600 feet from the outcrop, and if 35° be taken as the mean inclination of the beds—which is probably the case owing to their flattening out in the depth—it will be seen that it will not cut the reef until it has reached a depth of 140 feet. It may be observed that the further sinking of this shaft was entirely discontinued very shortly after the visit of Monsieur de la Bathie. The utility of sinking this shaft—the cost price of sinking which will be at least equal to £1 5s. per foot—is very doubtful at the present moment. The incline shafts which have been opened are quite sufficient to determine the value of the reef, and for actual work they are much more economical. Moreover, admitting that the object of this vertical shaft is to open out reefs still unknown, it seems to me that the same result could be arrived at much more economically by sinking crosscuts starting from the incline shaft. To sum up, excepting regards this last shaft, the present works are conducted in such a way as to determine the exact value of the mine. The results have been very encouraging hitherto, but it must not be forgotten that in this mine, as in all these situated on the Kimberley series, the yield of ore is far from being constant, and that very often rich pockets are discovered, the extent of which it is impossible to estimate until the mine has been completely developed.—2nd. Works projected. The company's future, projected works. At present the board of the Randt Gold Mining Company, Limited, proposes to prospect the mine by means of four shafts (inclined), situated on the outcrop, and of the vertical shaft of which we have spoken above. One of these inclined shafts is, as we have seen, now being sunk, and two others are going to be commenced in a short time. The vertical shaft, the sinking of which it is proposed to recommence directly the labour power at command will permit, will involve an expense which is hardly justifiable in comparison with the advantages to be derived from it. As regards the company's future, considering the number of reefs not yet mined which traverse the property, and the irregularity of the yield and thickness of the Kimberley series, it is difficult to form any definite calculation as to the life of the mine and the profits to be realised. Still, if we take as a basis the results obtained hitherto, and if we suppose that the reefs continue to present the same conditions, we get the following results, considering only the Battery reef and its leader:—Mean thickness of the two reefs 5 feet, mean inclination 35°, mean yield 1 ounce, tonnage of ore contained in a claim, 12,150 tons, tonnage of gold 15 per cent, for fault 10,927, tonnage contained in 43 claims 539,855, quantity of gold contained in this tonnage 539,855 ounces, quantity of gold recoverable (16 dwt. per ton) 723,839 ounces, value of this gold £395,556. A battery with 40 stamps would be quite sufficient, considering the small area of the property. Under this hypothesis the life of the mine would be 539,851 ÷ (40 × 4 × 300) = 18 years.

TENDERS FOR RAILWAY PLANT FOR SWEDEN.—The Secretary of State for Foreign Affairs has received a despatch from Her Majesty's Consul-General at Christiania, stating that tenders are invited for the delivery of 22,000 linear metres (13 miles 1180 yards) of rails, with fishplates, fastenings, &c., for the electric tramline to be constructed between Christiania and Holmenkollen. Tenders are to be sent in sealed envelopes, marked "Aubod," by October 15, to the tramlines office, 47, K. Rekevi, Christiania, where the conditions can be procured. The rails must be delivered in Christiania by January 1, 1897. Further particulars on the subject are expected from Her Majesty's Consul-General, and will be on view, as soon as they have arrived, at the Commercial Department of the Foreign Office.

The number of shares issued in the SOUTH AND CENTRAL AMERICAN MINES is 178,000, and not 200,000, as stated.

MINING IN CORNWALL

AND DEVON:
NOTES ON MINING IN THE WEST.

(FROM OUR OWN CORRESPONDENT.)

It is almost superfluous to say that there is no revival yet in the Cornish Share Market, and it can scarcely be expected while business is so quiet on the Stock Exchange that there will be much activity on the little mining exchange at Redruth. The building is almost deserted, and even those who used to spend the greater part of their day there are now but casual visitors, while one misses those old tales of adventure, more or less accurate, which used to be told by the pioneers of mining in Australia and California who largely frequented the exchange. There is absolutely no inducement to attend its markets now, and interest has even gone in the daily metal market telegrams, to receive which not more than a year or two ago, scores of members would be waiting. But the prices now are so monotonous in their fixity, and it will require a jump in one market of £5 a ton to induce some people to realise that the metal market does still exist. It is entertaining to hear the various expressions of opinion as to the future from those who have speculated and watched speculation in Cornish mining for years. There is the doleful, depressing individual who does not hesitate to aver that the fate of copper mining in the western county has at last followed on tin mining, and that the depression which has set in is to see the final closing of the industry which has made Cornwall famous; all the mines are to be closed, if not immediately within a very short space of time, and Cornishmen become as nomadic as the Jew. Then there is the optimistic gentleman, who, while he admits that he had expected a rise in tin before this—especially after a certain circumstance which occurred about a twelvemonth ago, but of which it would be heresy to speak now—believes "things will come," and vaguely hints at certain manipulations which are in progress, and reminds us that times have been bad in Cornwall before, and that they came out alright; and much more, all in the same strain. And this is what we have been hearing for the last year. Given certain indications of the development of a spirit of self-help, we agree with the optimistic gentleman, and by self-help we do not speak of an investment of their own money in the mines. Goodness knows, the Cornish people have not been backward in backing up their opinions with their hard cash, and there have been many noble examples of it in the last few months; but, taken as a whole, there has been too little done in the way of educating the outside public, and what little there has been has been an education of the wrong kind. The outside public has been shown only too well how to lose their money in some of the rotten ventures which have been floated on them, while the good things have been largely monopolised by those who were "in the know." What, for instance, we ask, as we did a few weeks ago, has been done by the Mining Association and Institute to help out of the difficulty? In what way have the investing public been shown that there is plenty of mineral in Cornwall if only sufficient money can be obtained? At the time when the question of Limited Liability concerns first came up, we were told, and it is doubtless perfectly true, that with improved appliances the cost of producing the mineral could be so reduced as to bring it down to meet the diminished value of the article, but where are the statistics which could have been prepared by experts, and put before the public effectually by such a medium as the Mining Institute? Something certainly has been done quickly and most successfully by Mr. C. V. Thomas, to whom the mining population is under a deep debt of gratitude, for his successful efforts to obtain capital for some of the concerns, but some united efforts to give the investing public an idea of the possibilities of mining in the land of "fish, tin, and copper" ought long ago to have been taken. We may be told that it is the duty of the Press to place these facts before the public, but it is as impossible for the newspapers to make bricks without straw as it was for the Israelites, and, taken as a whole, the policy of those most intimately associated with the mines has been one of secrecy rather than publicity. It has been a policy of giving as little information as possible to the Press, and with the scanty material which has been at its disposal the Press has rendered all the service possible. In the new companies there does seem to be some disposition to give the shareholders rather more information than they used to have, but even now it is in most cases very meagre. We commend to those who have opportunity of bringing pressure to bear in certain quarters the desirability of an extended publicity of the possibilities and probabilities of Cornish mining, and if the thing is placed fairly before the public there ought to be no difficulty in finding money for ventures which at the present moment are closed.

There is nothing new of importance in the mines, and much development seems to be going on in those which have the money to carry it out. Terms have been arranged, we understand, between the lord of West Frances and the directors of the Barima Mines for the taking over of the former sett, and, on the whole, satisfactorily. The manager of Basset announces that he has engaged Captain Thomas, who was second agent at West Frances, as a surface captain for the whole of the property, and the appointment is one of which the general body of shareholders will approve.

Astomach 4 feet. Lode 2 feet wide assaying 19 dwts. 9 grains of gold per ton. Stope above 315 south of south rise cut 9 fathoms. Lode 2 feet wide, assaying 16 dwts. 12 grains of gold per ton. Stope north of rise cut 8 fathoms. Lode 6 feet wide, assaying 1 ounce 5 dwts. 7 grains of gold per ton. Stripping down south side of shaft 26 feet deep, total below the 225 feet level 93 feet. No sample. The above stoping is for August month.—B>Returns. During August month 6020 tons of stuff were milled, producing 6403 ounces of gold. 2320 tons of tailings were treated, producing 602 ounces of gold, making a total production for the month of 7013 ounces of gold.

ORIENTAL.—Superintendent's report for fortnight ending Sept. 3:—New shaft. The shaft has been sunk 8 feet, making a total depth of 754 feet 6 inches. The average width of the quartz is 4 feet, assaying 9 dwts. 7 grains of gold to the ton. The lode in the south end of the shaft has become slightly mixed, but the quartz of the north end shows signs of improving.—860 feet level north. This level has been driven 23 feet, making a total length of 343 feet from the crosscut, and is still in the dyke—500 feet level south. The crosscut west of this level has been driven 21 feet, making a total of 137 feet. The lode in the shaft is a black quartz, containing a good deal of iron pyrites. 200 level north. This has been carried up 11 feet, making the total height 27 feet. The lode still continues so look very well, being 2 feet 9 inches wide, and assaying 1 ounce 8 dwts. of gold per ton.—East shaft. We have completed cutting the plat at the 440 feet level, and the machine is now engaged stripping down the south end of the shaft.—500 feet level north. This has been driven 2 feet, making the total length 225 feet 6 inches. The lode in the end is 2 feet wide, and assays 6 dwts. 13 grains per ton.—Oromandel shaft. This lode is 2 feet wide, assaying 1 ounce 8 dwts. 13 grains per ton. The lode is 200 level north. Binking operations have now been suspended, and the machine has been started driving in the north end of the 426 level.

GOLD FIELDS OF MYSORE.—Mine report for fortnight ending Sept. 3:—South shaft. The preparatory work for tip plat at 570 feet level has been completed. We have now started to sink below this and are carrying full size of shaft and room for tip plat, which will impede our sinking a little. 470 south drive has been driven 13 feet 6 inches, total distance from shaft 314 feet 6 inches. The lode is 2 feet wide, assaying 1 ounce 8 dwts. 13 grains per ton. The bottom of this level has been sunk 4 feet 6 inches, total depth 12 feet. Lode in the bottom has narrowed a little, being now 2 feet 6 inches wide, assaying 6 dwts. 13 grains of gold per ton.—470 north drive. The rise in the back of this level against middle shaft has been risen 5 feet 6 inches, total height 8 feet. This is in country rock. 380 south drive has been driven 19 feet, total distance from shaft 537 feet 6 inches. Lode in the end 4 feet wide, assaying 4 dwts. 6 grains of gold per ton.—Stopes. No. 1 stopes back 380 south. Ground stopped 4 fathoms. Assay value 1 ounce 11 dwts. 13 grains. No. 2 stopes back 380 south. Ground stopped 4 fathoms. Assay value 3 dwts. 6 grains of gold per ton. No. 2 stopes ground stopped 4 fathoms. Assay value 8 inches. Lode 3 feet wide, assaying 5 dwts. 21 grains of gold per ton.—Stope in the bottom of 380 south drive. Ground stopped 5 fathoms 2 feet 7 inches. Lode 4 feet 6 inches wide, assaying 7 dwts. 4 grains of gold per ton.—380 north. The crosscut west of this level has been driven 13 feet 6 inches, total distance 315 feet 6 inches. The lode is still in country rock.—Middle shaft. During the fortnight we have completed the cutting of ground for plat, &c., and have sunk this a further 10 feet, making a total depth below 330 feet is now 34 feet. No change in the lode in the bottom of the shaft.

KEMPINKOTE.—Superintendent's report for fortnight ending September 3:—New shaft has been sunk 50 feet, making a total depth from surface of 71 feet. Timber has been carried down to a depth of 6 feet. Prospect pit has been sunk 21 feet, making a total depth of 72 feet. Owing to the heavy rain operations have been suspended here, as it was unsafe for the men to work in the bottom of the pit.—Main shaft. We have commenced to retimber the collar of main shaft in order to get water for boilers. A well is being sunk to supply the pump with drinking water. The shaft is 2 feet 6 inches wide. Lode. The erection of the machinery is being forced ahead as fast as possible.

ORIENTAL.—Mine report for the fortnight ending September 5: Taylor's shaft. During the past two weeks a considerable time was occupied in timbering the shaft, consequently only 4 feet were sunk, making the present total depth 192 feet.—Bridge shaft. In addition to cutting a plat, 3 feet were driven in the 165 level north, the total length of which is now 70 feet. The lode is about 13 inches wide, composed of black rock intermixed with stringers of quartz. Assay value 1 ounce 8 dwts. 13 grains per ton. The lode in the level south was extended 12 feet, making a total of 90 feet. Here the lode is from 2½ to 3 feet wide, and still continues very regular and well defined, the sample obtained from it assaying 4 dwts. of gold per ton. In the 105 feet level south the lode is also regular, the width of it being about 2½ feet and the composition principally dark quartz, the sample taken giving an assay value of 3 dwts. 6 grains of gold per ton. The length of the level is now 232 feet, showing an advance of 16 feet in the two weeks.

ROSE CREEK.—Superintendent's report for fortnight ending September 7:—Taylor's shaft sunk 13 feet, depth below surface 165 feet 6 inches. Lode 2 feet 6 inches. Roof continuous, but very small. The 960 feet level south driven 20 feet, total 181 feet. Lode 1 foot wide, chiefly quartz, assay value 19 dwts. 15 grains. The 960 feet level north driven 15 feet, total 78 feet. Lode pinched. No sample. The 860 feet level south driven 16 feet 8 inches, total 459 feet. Lode 1 foot wide, assay value 8 dwts. 17 grains. No. 1 winze 860 feet level south sunk 9 inches, total 34 feet 6 inches. Lode 9 inches wide. Water in, no sample could be taken. No. 3 winze, 860 feet level south, sunk 3 feet 3 inches, total 6 feet 6 inches. Lode 8 inches wide. Assay value 1 ounce 11 dwts. 13 grains. The 860 feet level north driven 9 feet, total 309 feet. Lode 3 feet 6 inches wide, assay value 1 ounce 14 dwts. 20 grains. This quartz has turned rather suddenly to the east, and has cut into the 860 feet level south from Walroth's shaft at a point where a small crosscourse was intersected, which accounts for this split. We are rising and sinking on this, and so far find it continuous and adding to our reserves. No. 1 winze 860 feet level north sunk 3 feet 6 inches, total 21 feet 6 inches. Lode 1 foot 6 inches wide, assay value 1 ounce 11 dwts. 13 grains. The 860 feet level north risen 11 feet, total 21 feet 8 inches. Lode 1 foot 6 inches wide, assay value 19 dwts. 15 grains. No. 4 winze 780 feet level south sunk 2 feet, total 6 feet. Lode small, no sample. Walroth's shaft sunk 18 feet 3 inches, total 1262 feet. Lode in the south end of shaft is 8 inches wide. As it approaches the north end it contracts and contains less quartz, a sample from which gave by assays 2 dwts. 5 grains. This shaft being sufficiently deep for the 1265 feet level, they are commenced and will be extended 15 feet in each direction, for which the 1265 level will be assumed, making a total of 1270 feet. The 1080 feet level south driven 10 feet, total 441 feet 9 inches. Lode still pinched. The 1080 feet level north driven 11 feet 3 inches, total 322 feet. No. 1 winze in this level sunk 3 feet 3 inches, total 70 feet. The lode at each point continues small and of no value. The 960 feet level north driven 9 feet 6 inches, total 381 feet 9 inches. Lode 9 inches wide, assay value 5 dwts. 10 grains. The 780 feet level north driven 8 feet 6 inches, total 531 feet 6 inches. Lode contracted, no sample. No. 3 winze 760 feet level north sunk 2 feet 9 inches, total 24 feet 6 inches. Lode 3 inches wide, assay value 1 ounce 11 dwts. 13 grains. The 760 feet level north driven 5 feet 6 inches, total 413 feet 6 inches. Lode 4 inches wide, assay value 4 dwts. 8 grains. No. 2 winze 480 feet level north sunk 5 feet 3 inches, total 68 feet 3 inches. Lode 1 foot 3 inches wide, assay value 6 dwts. 12 grains. No. 2 winze 360 feet level north sunk 9 inches, total 58 feet 6 inches. Lode 3 inches wide, assay value 4 dwts. 8 grains. The 215 feet level south driven 14 feet 6 inches, total 424 feet 6 inches. Strata harder, still carrying stringers of quartz. No. 1 winze level south from crosscut east 215 feet level north sunk 5 feet, total 9 feet 6 inches. Lode 2 inches wide, assay value 1 ounce 11 dwts. 13 grains. Lode north from crosscut east 215 level north driven 5 feet 3 inches, total 33 feet 3 inches. Lode 9 inches wide, assay value 4 dwts. 8 grains. Low's shaft sunk 11 feet 6 inches, total depth 886 feet 4 inches. The 810 feet level point of intersection driven 19 feet 9 inches, total 292 feet 3 inches. Lode 6 inches wide, assay value 6 dwts. 12 grains. No. 1 winze 810 feet level south from point of intersection sunk 1 foot, total 18 feet. Lode 2 feet wide, assay value 2 dwts. 4 grains. No. 2 winze 810 feet level south from point of intersection sunk 4 feet, total 6 feet 6 inches. Lode 2 feet wide, assay value 1 ounce 11 dwts. 13 grains. No. 1 winze 810 feet level south from point of intersection driven 2 feet 9 inches, total 161 feet 6 inches. No discovery. No. 1 winze 810 feet level north from point of intersection sunk 1 foot, total 18 feet. Lode 1 foot 9 inches wide, assay value 3 dwts. 6 grains. No. 1 rise 810 feet level north from point of intersection risen 2 feet, total 6 feet. Lode 3 feet wide, assay value 4 dwts. 8 grains. This has communicated with No. 1 winze 710 feet level south driven north on lode from point of intersection. The 710 feet level south driven 7 feet, total 119 feet 9 inches. Lode 2 inches wide, assay value 1 ounce 11 dwts. 13 grains. No. 2 winze 61 feet 9 inches. Lode 1 foot 6 inches wide, assay value 3 dwts. 4 grains. No. 3 winze 710 feet level south sunk 1 foot 3 inches, total 22 feet 9 inches. Lode 1 foot wide, assay value 6 dwts. 12 grains. The 610 feet level south driven 6 inches, total 307 feet. Lode small, suspended. No. 2 winze 511 feet level south sunk 3 feet 6 inches, total 49 feet 9 inches. Lode 9 inches wide, assay value 3 dwts. 6 grains.—Probyn's shaft. The 1050 feet level south driven 14 feet, total 254 feet 6 inches. Lode 2 feet 6 inches wide, assay value 4 dwts. 4 grains. No. 1 winze 1050 feet level south sunk 8 feet 6 inches, total 68 feet 6 inches. Lode 2 feet 6 inches wide, assay value 1 ounce 11 dwts. 13 grains. Stope for the month of August. Taylor's shaft. The bottom of the 780 feet level south is stopped 30½ fathoms. Average width of lode 2 feet, assay value 2 ounces 6 dwts. 6 grains. Back of 780 feet level south stopped 22½ fathoms. Average width of lode 2 feet 6 inches, assay value 1 ounce 18 dwts. 2 grains. Bottom of 60 feet level south stope 2¼ fathoms. Average width of lode 3 feet 6 inches, assay value 2 ounces 1 dwts. 9 grains. Bottom of 561 feet level south stopped 41 fathoms. Average width of lode 2 feet 6 inches, assay value 1 ounce 18 dwts. 2 grains. Bottom of 521 feet level south stope 48 fathoms. Average width of lode 3 feet 3 inches, assay value 1 ounce 6 dwts. 15 grains. Bottom of level south from back of No. 4 rise 231 feet level south stopped 1½ fathoms. Average width of lode 2 feet 8 inches, assay value 1 ounce 13 dwts. 18 grains. Bottom of level north from back of No. 4 rise 280 feet level south stopped 5 fathoms. Average width of lode 3 feet, assay value 1 ounce 13 dwts. 12 grains. Back of level south from back of No. 4 rise 310 feet level south stopped 2 fathoms. Average width of lode 1 foot 9 inches, assay value 1 ounce 18 dwts. 2 grains. Back of bottom of level north stopped 1 fathom. Width of lode 1 foot 6 inches, assay value 2 ounces 3 dwts. 13 grains. Bottom of 380 feet level south stopped 31½ fathoms. Average width of lode 1 foot 9 inches, assay value 1 ounce 7 dwts. 9 grains. Back of 380 feet level south stopped 6½ fathoms. Width of lode 1 foot 9 inches, assay value 1 ounce 12 dwts. 18 grains. Bottom of 360 level north stopped 5 fathoms. Width of lode 3 feet, assay value 1 ounce 13 dwts. 18 grains. Bottom of 280 feet level south stopped 8 fathoms. Average width of lode 1 foot 10 inches, assay value 1 ounce 12 dwts. 18 grains. Average width of lode 1 foot 10 inches, assay value 1 ounce 12 dwts. 18 grains. Average width of lode 1 foot 2 inches, assay value 18 dwts. 12 grains.—Low's

DIXIE.—The secretary writes: I am instructed by my directors to say that they regret very much to have to inform you of the death of the Chairman, Mr. W. P. Smith, which took place at Coalville, on Tuesday, the 23rd inst., from the effects of dysentery. As you are aware, he left for West Australia on behalf of this company in April last, at the start of the strike. He had just visited the mine, and had appointed a new mine manager, and was so well satisfied with the progress which had been made under his instructions, that in his letter, dated August 5, he contemplated leaving for home in the course of six or eight weeks. The following are extracts from a letter dated August 17: You will notice from the reports that there is much more work being done each fortnight since the new management began. We are now about 107 feet in the No. 1 shaft and 93 feet in the parallel shaft. We are taking a large lot of surface material, and will have a large amount of material in position at the mine at this moment. I am very much satisfied with the position of the mine at this time. The parallel shaft is down over 90 feet, the first 90 feet is of very low grade, improving a little all the time to 70 feet, and from there down, about 1 foot to 1 foot 6 inches wide, and showing good tin. The No. 1 shaft is very poor indeed down to 80 feet, where a drive is put in, at the

and of which the quartz has pinched out. The next 20 feet improves a little in value, but has almost pinched out at one place. The next 20 feet is in fair stone, showing gold occasionally and much more quartz. The last few feet do not prospect so well. However, at about 87 feet deep and continuing for a few feet (the exact place I forget) we began to get the very valuable lumps of galena, which have, to my mind, altered the prospects of the whole mine. From there down we are getting some galena, and the assays will I doubt prove that they enrich the whole vein beyond what we, going entirely by panning, think it is worth. My assays return will be sent you next mail. If you have read Schmeisser's report, you will observe that with regard to milk white quartz (our sort), he says the value are invariably in the shoots, and that outside these shoots the quartz is valueless, and that these shoots are not to be taken as continuous veins. It was with a view of discovering whether Dixie's shoots were of this sort that I stoped and sunk on our shoot. The result was satisfactory. So far as we went the shoot was fairly continuous as to size, and very nearly quite regular in value. I had to stop the work on account of the richness of ore, as I have already told you. This galena, as to which Schmeisser said he saw very little in this country, gives me the hope that we have very considerable bodies of valuable ore outside our shoots. You will see that in the parallel we have struck the rich shoot and the crosscut, which we are now running from the 80 feet drive in the No. 2 to the parallel will prove the direction of the shoot. I feel a great deal of responsibility in reporting to you, and I am sure you will understand the reasons for the same. The chief purpose of a clique perhaps, but not the interests of the main body of shareholders. Bad luck, such as losing the shoots temporarily should not much alter the value. Even if we hit a blank I should still be prepared to go down through it with some confidence. On the other hand I feel convinced that there is the possibility of striking such large bodies of ore permeated with this galena as would pay 1/2 for the mine twice over. We are putting on men whenever we can, and everything is being run with utmost rigid economy. Tresidder, though quite uneducated, is a splendid executive officer and a rare judge of work and most intelligent and knowledgeable so far as mining work of all sorts is concerned. Please observe the manner of his work and run, and the cost for fuel on it. The cost for fuel is very favorable with that of the West Australia. At a board meeting, held on the 25th inst., Mr. Francis Algernon Govett, of 4, Throgmorton Avenue, E.C., was appointed a director of the company, and Colonel Walrod, of 13, Delamere-terrace, W. (a director of the company), was elected Chairman of the board.

GOLD ORE TREATMENT COMPANY OF WESTERN AUSTRALIA.—The company's manager in the colony reports that the erection of the experimental plant on the company's system at Coolgardie is being rapidly proceeded with. Ores and tailings will be treated for the public, and a full demonstration of the capabilities of the process will thus be afforded. A large number of applicants have been informed of the results already achieved, and have been advised as to the best methods of treating their ores.

GREAT BUNNYONG ESTATE.—Report to hand states: Alluvial shaft sunk 11 feet in hard blasting country, full depth 253 feet. Water at foot slightly increasing. At the quartz shaft the water lodgment has been extended 23 feet, full length from shaft 48 feet. Now preparing to build up dam head, and expect to be ready to resume sinking at the end of the week.

and expect to be resuming sailing at the end of the week. The men were taken to the shore at 10:30 a.m. on Block 59 dated August 21: "The reef cutting out in the south drive at about 9 feet the men were put on to work a quartz vein bearing to the south-west, which cut out at 7 feet, the country being of a solid diorite formation. Two men were started driving on a leader in the north drive bearing in an easterly direction and the reef was followed to the south. The reef in the north drive is an intrusive rock mentioned in previous reports. On Friday one shift was put on to open up an east and west leader which was discovered outside our lease some time ago. In one coasteen the reef is about 18 inches thick traversing an easterly and westerly direction and dipping towards the north, very fine gold is contained in the reef, and the reef is about 10 feet in thickness; it is accompanied by a slate formation, and is about 8 inches thick.

accompanied by a shale formation, and is about 8 inches thick.

KINLAID—No report for fortnight ending August 20: 193 feet level, north drive section 14. This drive has been extended 13 feet for fortnight, making 310 feet from main crosscut. Work has been greatly hampered by bad ground met with. Six men in this end. Lode 4 feet wide,—100 feet level, section 14 north stop. Four men stopping. Lode 4 feet wide,—110 feet level, south drive section 22. We are now in 497 feet from crosscut, making 35 feet driven for fortnight. Six men working here. Lode 6 inches on east side,—100 feet level, south stop section 21. Four men here. Lode 6 feet, but only taking 4 feet of this,—100 feet level, prospecting crosscut east, 130 feet south from main crosscut, section 13. Two men working. Lode 14 feet, but only clean country traversed, was stopped the 13th inst., and the two men removed to drift 43 feet level d'iving north,—43 feet level section 18. Prospectors connecting main drift south to north crosscut, extended 6 feet. Lode 5½ feet,—Intermediate drive, No. 1 north shaft 12 feet below 43 feet level section 16. Six men here driving north and south on lode. Four men driving south, and are now in 30 feet from shaft, carving 3½ feet of stone. Two men driving north, and in about 6 feet. Lode 6 feet wide, only taking 3 feet of it. All the men working on this lode. Two men working on lode 14 feet, section 14, west of No. 1. 8 shaft section 20. Two men taking out bottom of 43 feet level. Lode 3 feet thick.—Back of 43 feet level south stop section 21. Two men were put in this stop the last week, where stoping was relinquished some time back. Lode 3½ feet thick.

LIMERICK.—The manager's report, dated August 27, states: Lease 1452. Resumed sinking main shaft as soon as winding gear was completed, which is now working well. Now down a further depth of 12 feet, total depth 120 feet. The lode getting solid and hard, and for the first few feet being heavily charged with pyrite, which on being roasted shows free gold.—The Blow. From this shaft we have 25 feet north and south the lode, which proved to be 12 feet wide.

shaft we drove 25 feet north and cut the hole, which proved to be 12 feet wide. LONDON AND WESTERN AUSTRALIAN INVESTMENT.—The following information is to hand:—Hannan's Water Rights. The five water rights secured by this company lie to the east of the town, following the trend of the auriferous belt of country in which the Great Boulder, Brownhill, and other reefs are situated. The first of these rights was deepened to a depth of 100 feet, put down in this belt was sunk by the Government, and proved that a very ample water supply could be obtained at a comparatively shallow depth. The shaft was put down to a depth of 193 feet, and from there a bore hole was sunk 51 feet further, making a total depth of 257 feet, from which 6000 gallons a day have been drawn for some time back.—Perth Blocks. The warehouse erected by the company on the river side, Block L17, has been let at a good rental, and in view of the increasing demand for similar premises the company contemplate erecting another warehouse on their property.—Kalgoorlie. All the buildings of the company's buildings at Kalgoorlie have been let, and an extension of the tramway is being done for the purpose of increasing the

Extension of the premises is now being arranged for.
LONDON AND WESTERN AUSTRALIAN EXPLORATION.—The following reports are to hand:—Mount Magnet Proprietary, "Splendour lease," gold drifts on the north side of the lode which at the crosscut measured 16 inches; "Solid stone" drive, 100 feet down, good quality, polished, exceedingly rich stones were struck. The lode is nice and solid, and still maintains size. I hope this quality of stone will continue. I shall then resume sinking, and cut the lode at the 100 feet level.—On the Wheel of Fortune lease, south drive. Some really good specimens have been broken in this drive during the past few days, and the bulk gives, by panning, good prospects of fine gold. Seven samples taken on this lease average an assay 2 ounces 7 dwts. per ton, Mr. F. J. This is the best result yet obtained here. Some specimens of quartz from the mine showing gold freely, estimated at 2½ ounces per ton, have just been received at the office of the company.

At the office of the company.

MYALUS UNITED.—Mine manager's report for week ending August 15: Main vertical shaft. Still engaged on pit at 240 feet from surface. To be 12 feet high by full width of shaft.—No. 1 underlie shaft. Extracted 51 tons of quartz from level 240 feet from surface, and started winze on the lode going down. Drifted out from same level to main shaft extended 12 feet 6 inches. The rise to be open cut over No. 2 level put up and further 4 feet 6 inches, now 9 feet, ground very hard.—Reidie's shaft. Drive north extended 12 feet 6 inches, now 41 feet 6 inches from old stope. There is about 3 feet of quartz in this drive of low grade, but during the week a little gold has been seen in the stone, and there are indications of a shoot of gold coming in.—Water supply. The water at the spring eased off considerably the latter part of last week. Since then I have sunk another 5 feet, and a supply of 1500 gallons per hour is now being obtained. We shall keep the pump going a little while to prove the staying power of this flow.—New lode. Proves to be 6 inches wide. Have opened out on its south, and find it maintains its width and encouraging appearance. It contains some exceedingly fine gold, and on the footwall some good specimens

MENZIES ALPHA.—The following circular report has been sent to the shareholders: The directors have pleasure in submitting particulars of the intelligence received with reference to this company's property during the last two months. At its statutory general meeting held on July 28 last, a communication was received from our surveyor, Mr. Duffell, giving the following details as at that date. The width of the reef or low-grade ore at the bottom of the D shaft, lease No. 3'11, was given in that cablegram as 2½ inches; we have since been advised that this dimension should have been given as ¼ ft.—Developments. During the last two months the whole of the work of development has been concentrated in the new vertical shaft sunk in lease No. 2011. This work has consisted in the opening up of further ground by continuing to crosscut to the east in the 60 feet crosscut : of extending the levels to the north and south from this cross-cut upon the promising formations that have been met with ; and of sinking upon the same level in the eastern end 35 ft. 1 inch, where to the great surprise and delight of the public has been found a fine body of gold-bearing quartz veins and well-sorted conglomerate, which will be worked by the company from time to time. At the date of last detailed report received by mail, the crosscut to the east—63 feet level—had been extended to a total distance of 224 feet. No. 1 north level from this crosscut has been driven a total length of 90 feet. No. 1 south level 50 feet. No. 2 north level 48 feet. No. 2 south level 53 feet. With reference to the stone above referred to in No. 1 south level, upon which we are sinking a winze, the directors have pleasure in pointing out that up to the present there has been a considerable and consistent increase both in the width of the reef and the richness of the stone as depth is attained, as the following sequence of assays shows :—

Extract from cable dated July 27.—Crosscut on the 63 feet level, show No. 1 south. The winze is now down 46 feet on pay chute. Reef 8 inches, value 5 ounces.—Cable dated August 10 : Mine is looking well and promises better. In the bottom of the winze the stone is worth 5 ounces, 9 inches (width). Cable dated August 30 :—"Vertical shaft (new) winze," south level No. 1. Present depth is 59 feet. Reef 10 inches. Assay value for gold per ton 12 ounces 8 dwts." Extract from cable dated September 4 :—Mine is looking well and promises better. The winze is now down 75 feet. Assay value for gold per ton 15 ounces 15 dwts.

Extract from cable dated September 8 :—The present width of reef is 2 feet. Looks splendid." Water supply. With reference to water supply, the board are advised that bore holes were sunk upon the Northern Lease (No. 3031) to enable a judgment to be formed as to the most suitable site for the formation of a dam, and they have since been advised that dam can be formed of a capacity of 5,000,000 gallons, and they understand it is in course of formation at a cost of £235.—Plant and machinery. Steam hoisting plant has now been ordered, and as soon as possible will be erected upon the ground. Advice is expected at an early date that developments are sufficiently advanced for the erection of a mill.—Consulting Consulting Engineer. The board have cured the services of Mr. George Armstrong & Co., consulting engineers and mining engineers, of Melbourne, who has had considerable experience in the management of Australian mines, is now on his way to the field, and upon his arrival will take up the superintendence of the development work, which up to the present has been

conducted so energetically by Mr. Jowett, of the Menzies Gold Reefs Proprietary Company.—General. The following is an extract from a special despatch from Perth(West Australia) published in the *Financial News* on September 26 : The Alpha leases at Menzies, on the deepest levels, are now working on a chute of ore assaying over 20 ounces of gold to the ton. The lode is 2 feet thick. Information will be communicated to the shareholders from time to time as the work of development proceeds.

LADY MAUDE. The manager, under date of August 25, reports as follows: During the past week the Surprise main shaft crosscut has been extended 4 feet into the reef, making a total of 52 feet from shaft and 5 feet into reef with no signs of footwall. As soon as I have cut through the reef, I intend to drive north on its course, at the same time cut out chumbar at shaft, at 100 feet from the surface, and then cut down the shaft a further depth of 10 feet. The water shaft has been sunk a further 7 feet, making a total of 90 feet. The country at bottom is improving and occasionally small veins make their appearance. The Maude main shaft has been sunk an additional 6 feet. Total depth 137 feet. One shaft has been employed timbering. From experience believe am getting through the large lode formation, and when I reach the bottom of the Surprise I will be able to drop the dip and follow the first touching the lode to present bottom of shaft it makes the lode formation 34 feet thick, which all carries more or less gold.

MENZIES CONSOLIDATED is under no gold. The following effort has been received from Mr. Weekley, the manager at the mines, under date Menzies, August 22.—Royal group, Eva lease. Work confined to opening up lode at 100 feet level. 15 feet driven north-west on strong and well-defined lode 5 feet wide. The lode is of good quality, but is very irregular in width, and is reduced in width, but quality same as above. Have not the least doubt but that the lode will make again to the south-east.—May shaft. Total depth 142 feet. Lode 4 feet wide, value 25 ounces of gold per ton.—Ada shaft. Crosscut 120 feet. Lode 12 feet wide, value 25 ounces of gold per ton. Getting in good supplies of timber for erection of battery and other purposes.

MENZIE'S GOLD SYSTEMS, E.—In the manager's report, dated August 23: Aurelia, No. 2 shaft. This shaft is now 111 feet deep. The lode is without change with the exception of the quartz coming in again. The ground is good for sinking and requires timbering as we go down. The ore chute which ran so well above in sinking has dipped south. This we shall catch again in drifting at the next level. The formation in 57 feet level north is the full width of drive. We have about 30 feet more to drive to connect with the level from No. 1 shaft.—Cleone. We are close timbering the shaft at present, and about close to sinking again.—Brenna. The main shaft is now sinking, and the drive is close to timbering, and is about to pump in timber. The main water pipe for conveying the water to mill has dried.

WATER PIPE for conveying the water to mill has arrived.

MCKENZIE.—Report of consulting engineer, Mr. Frank Nicolas, M.I.M.E., for having submitted a report on submitting a new mill, half-yearly report on First-Try and Glenloch leases which comprise the McKenzie tract, this opportunity of congratulating you on the very excellent developments that have taken place in that portion of your property on which all the labour has been concentrated—namely, the Southern Block (Glenloch). For several years past, the Glenloch block has been the source of the greatest amount of the country rock might pinch the reef, if no altogether at any rate to such an extent as to render its extraction unprofitable. Subsequent developments

as patent as to render its extraction impracticable. Subsequent developments have shown that the ore is not so hard as the parties in authority supposed, and to widen considerably when intrusive igneous forms either the walls. At the 120 feet level the reef is wider than on the surface, and seems to be increasing in depth. The value of the ore has been tested by two crushings (at a hired mill) of 100 tons and 104 tons respectively. The results (142 ounces 7 dwts, and 183 ounces 12 dwts.) though eminently satisfactory to themselves, were entirely unsatisfactory in regard to the amount of gold lost in tailings—namely, 13 dwts. per ton in first crushing, and 15 dwts. in second. The several samples of tailings were taken in conjunction with the manager of the battery, whose interest it, of course, was to have them assayed as little gold as possible. The trial crushings were intended to settle the question whether you were justified in erecting machinery at once on your mine, and that they might be able to give you the quantities of ore to be crushed at a single crushing. I advised you of the purchase of a battery engine and boiler in Victoria. The machinery, which is of the newest type and by one of the best foundries in Australia (Messrs. Roberts and Sons, Bendigo), will be erected with all possible dispatch, and I am of opinion that the loss in tailings with such a mill as you propose will not exceed 4 dwts. per ton. I am sorry not to be able to name some date by which the battery should be running. In ordinary circumstances the date could be calculated within a week, but no one who has had any dealings with the Government Railway Department of Western Australia, would be foolish enough to calculate on any given date for the delivery of goods. A glance at the accompanying plan will give a good idea of the work done. No. 1 shaft, the shaft sunk by the original owners, at the 40 feet level—namely, the meeting of the drift with the granite, the schist is at the level of 100 feet, driven both ways, and the ground was then stopped to the surface. The gold was in all reefs on Burbank's line) is in patches, but averages by assay 2½ ounces, of which 2½ ounces should be won in a battery. No. 2 shaft is 60 feet deep, at which level drives have been put in north and south 54 feet and 80 feet respectively. The rocks in this drive are diorite and granite, the schist not coming in until further north. The main engine shaft is 124 feet deep. At the 120 feet level the reef was cut and driven along for 45 feet. The reef at 15 feet from the shaft is 2½ feet broad, and a small winz was put down on it, but was stopped when it was decided to call for tenders for sinking the main shaft to water

well. A drive north at the 120 feet level had been started and will be put in far enough to allow of the main shaft sinking being continued. When the south drive has been advanced a few feet, a winch will be sunk connecting the 20 feet and the 120 feet levels. This will make a continual draft from the south level, and by driving the atmosphere in the mine will be considerably improved. No. 3 shaft is 50 feet west of the line and runs from No. 1 shaft to the engine shaft, and at first I supposed the reef found in No. 3 to be an entirely different reef running parallel to the main reef, but subsequent developments point to the reef in No. 3 being a "throw back" from the main reef, and I am confirmed in this belief by the fact that for several yards north of the engine shaft there is no continuation of granite in the direction of the line, but a considerable distance to the south, about 50 feet west of the main reef, No. 3 shaft is down 35 feet on the reef, which shows excellent gold. At 40 feet it is intended to drive north along the reef to continue proving it in length and to open up fresh ground. The mine is being developed in a systematic and thorough manner. It is in the hands of a very experienced manager, and all the work is being done on an economic basis, as is consistent with the quality and quantity of the ore. The mine is an excellent mill site, with a good fall for tailings and allowing of a sufficient fall for trucks from the brace to the battery. This site is now being cleared and excavation work is commencing. Until I know more concerning the amount of water that can be calculated on, I am diffident in attempting to give you figures showing the cost at which the ore can be worked, but, for confidence, I will suppose the water supply to be sufficient for the expectation, the cost of extraction and milling should not exceed £1 per ton, leaving a profit of £1 per ton on every ton of ore worked.

MOVING A BELL OF 25 TONS ON EVERY 100 OR WORSE.

THE DIRECTORS' REPORT ON THE ASSAY OF REFINED COPPER ISSUED BY THE DIRECTORS STATED IN CONNECTION WITH THE ABOVE REPORT, GIVING THE RESULTS OF THE SMELTING UP TO JULY 31ST, THE DIRECTORS DEEM IT AGAIN ADVISABLE TO ACQUAINT THE SHAREHOLDERS WITH THE METHODS EMPLOYED IN TREATING THE ORE. THE ORE WHEN RECEIVED FROM THE MINE GOES DIRECT TO THE SMELTER, THE INTERMEDIATE PROCESS OF ROASTING BEING DISPENSED WITH. THE RESULT IS A LOW GRADE MATTE, KNOWN AS FIRST MATTE. THIS FIRST MATTE IS RETURNED TO THE FURNACE, AND THE PRODUCT IS A HIGH GRADE MATTE TERMED CONVERTER MATTE READY FOR TREATMENT IN THE BESSEMER CONVERTERS. THIS IS THE USUAL PRACTICE, AND HAS MANY CONSIDERATIONS IN ITS FAVOUR, AS AGAINST ATTEMPTING TO MAKE A HIGH GRADE MATTE BY THE FRYING PROCESS. THE FIRST MATTE IS TREATED IN THE BESSEMER CONVERTER, THE MACHINERY SITE FOR PAVING THROUGH THE BESSEMER CONVERTER PLANT NOW IN COURSE OF ERECTION, AND WHEN COMPLETED THE RESULT THEREFROM WILL BE A PRODUCT CALLED "BILLET COPPER," CONTAINING AT LEAST 98 PER CENT OF COPPER, AND THE GOLD AND SILVER. THE FIRST FURNACE WAS STARTED ON JUNE 25TH, BUT, AS THE OPERATIONS OF THE FIRST TWO WEEKS WERE PURELY OF AN EXPERIMENTAL CHARACTER, VERY LITTLE ORE WAS MELTED DURING THAT PERIOD. SINCE JULY 9 THE FURNACE HAS TREATED AN AVERAGE OF 199 TONS OF CRUDE ORE PER DAY, IN ADDITION, TO THE FIRST MATTE RETURNED TO THE FURNACE. FROM JUNE 25 TO JULY 31 INCLUSIVE, A TOTAL QUANTITY OF 2533 TONS OF ORE HAS BEEN TREATED BY ONE FURNACE, THE AVERAGE ASSAY VALUE OF THE ORE BEFORE TREATMENT BEING 22.25 PER CENT, SILVER 5.61 GRAMS PER TON, GOLD 15.45 GRAMS PER TON. THIS IS SOMEWHAT HIGHER THAN THE AVERAGE GENERAL ASSAY VALUE OF THE ORE THROUGHOUT THE MINE. THE PRODUCT OBTAINED FROM THE TREATMENT OF THE ABOVE ORE WAS 224 TONS OF CONVERTER MATTE, CONTAINING COPPER 114 TONS, SILVER 9373 GRAMS, GOLD 320 OUNCES, AND ALSO 129 TONS OF FIRST MATTE (WHICH HAS NOT BEEN BROUGHT UP TO CONVERTER MATTE) CONTAINING COPPER 28 TONS, SILVER 1493 OUNCES, GOLD 78 OUNCES. THE GROSS VALUE OF THE ABOVE PRODUCTS, AT PRESENT LONDON QUOTATIONS, IS £3975. THE COST OF MINING AND SMELTING IN CONNECTION WITH THE foregoing 2533 TONS TREATED IS £2555 13s., EQUAL TO 19s. 9d. PER TON OF ORE. IT IS ESTIMATED THAT A FURTHER COST OF 13s. 3d. PER TON OF ORE WILL BE NECESSARY TO TREAT THE ABOVE MATTE IN THE BESSEMER CONVERTER PLANT, AND THE COST FOR TREATMENT, SHIPMENT, AND REALISATION IN EUROPE, THIS MAKING THE PRESENT ESTIMATED TOTAL COST 32s. PER TON OF ORE, BASED UPON THE RUN OF THE FURNACE SINCE JULY 10. SUMMARISED THESE FIGURES STAND AS FOLLOWS:—VALUE OF PRODUCTS OBTAINED BY TREATING 2538 TONS OF ORE IN ONE FURNACE £3975, EQUAL TO £3 17s. 1d. PER TON OF ORE. COST OF TREATMENT, SHIPMENT, AND REALISATION OF ABOVE QUANTITY £1410 15s., EQUAL TO £1 12s. PER TON OF ORE; LEAVING £2 33s. 4d., EQUAL TO £2 s. 1d. PER TON OF ORE, REPRESENTING AN ESTIMATED PROFIT OF 45s. 1d. PER TON ON THIS ORE. MR. STICHT, THE COMPANY'S CHIEF METALLURGIST, REPORTS THAT THE TREATMENT OF THE ORE BY THE PYRITIC PROCESS IS A COMPLETE SUCCESS, AND AS THE COST GIVEN ABOVE IS BASED UPON THE TREATMENT OF THE ORE BY THE PYRITIC PROCESS, THE CORRESPONDING REDUCTION IN THE COST PER TON MAY BE LOOKED FOR AS AN ADDITIONAL ADVANTAGE. THE ABOVE INFORMATION HAS BEEN FURNISHED TO GIVE THE SHAREHOLDERS A GUIDE AS TO THE COST OF PRODUCTION, AND IT IS EXPECTED THAT THE ALL-YEARLY ACCOUNTS WILL SUPPORT ESTIMATES. IN FUTURE, THE DIRECTORS WILL ONLY PUBLISH, AS IS CUSTOMARY, THE TOTAL QUANTITY OF ORE TREATED EVERY FOUR WEEKS, WITH THE RESULT THEREFROM IN CONVERTED MATTE, TOGETHER WITH THE QUANTITY OF FIRST MATTE ON HAND AT THE EXPIRATION OF THESE PERIODS. WHEN THE BESSEMER

converters are rannish the result will be given in blister copper.

MOUNT LYELE MINING AND RAILWAY.—Engineer in charge of mine reports for week ending August 14: No. 1 tunnel north drive. Distance driven for week 2 feet, total 67 feet. No. 3 tunnel main crosscut north drive. Distance driven for week 5 feet, total 8 feet. No. 3 tunnel main crosscut south drive. Distance driven for week 6 feet, total 12 feet. No. 4 tunnel south drive. Distance driven for week 6 feet, total 552 feet. No. 4 tunnel south drive. No. 3 crosscut. Distance driven for week 2 feet, total 64 feet. No. 4 tunnel south drive. No. 2 rise, slopes. Ore stoped here during the week.—Surface work. No. 1 bench. Stripping has been regularly carried on at the bench.—No. 2 bench. Stripping overburden and breaking ore for smelters has been satisfactorily carried on here.—No. 34 bench. Stripping overburden has been proceeded in this case. Blast furnace No. 1. Report of work during week 14. Smelting plant. Blast furnace No. 1 in operation. Preparing settling for large pump for supplementing water supply from main body of Silver River. Hanging U-tubes of second hot-blast stores. Blast furnace No. 1 has been completed in its minor water connections *ad interim*. Tram siding from head of Abt siding to level of slag dump now in hand.

CONVERTER PLANT. One boiler installed at site. Roof trusses, etc., over silica mill and engine room installed. Framework of silica mill, no new work.

RAILROAD. Fair. Superintendent railway engineers' reports for week ending August 14: Goods shed and wharf extension at Tepeokanas in progress. Footway bridge and signal chain, Rinsades, in progress. Foundation walls Queneau goods shed completed a id contract let for erection of same. Clearing converter siding commenced. Erection of block signal wires in progress.

Ballasting in active progress, and completed portions of the road in
or ler.

MOUNT BOWE CONSOLIDATED.—The manager, under date of August 10, reports as follows: The crosscut east at the 160 feet level has been started, and is now in 6 feet for the week. The crosscut from the north drive has extended 8 feet, making a total of 15 feet. The south drive has been driven to the lode a further distance of 4 feet, total 155 feet. The crosscut east at the 160 feet level is being put into the hill to prepare the road going to the east of the shaft as shown on the plan. I am now in negotiation for the sale of the water from the Regina shaft, and I anticipate having the matter settled in a few days. I have now nearly completed our arrangements of tanks and up to the surface for conveying the water from the shaft, and for supplying the condenser; and I am anticipating that if we succeed in selling the water, the income will yield about one-third of the amount of wages required for the service on the leases.

NEW QUEEN.—The following fortnightly report has been received from the mine: dated Charters Towers, August 14: Underlie shaft. The eastern level has been sunk a further distance of 5 feet, making it 45 feet from the level of the reef in the face averaging about 1 foot. The eastern level of the reef has been extended a further distance of 27 feet, making it 255 feet from the level of the reef, principally on the leading stope the work being confined as much as possible towards the end of the level. At times the stone seems to be more mineralised.—Vertical shaft. Preparations for sinking are being attended to. The dam has been fixed in the western level. Sufficient ground has been taken out on the plat to admit of landing the muck-ear from the shaft, and other necessary work is being attended to as expeditiously as possible, I hope to resume sinking during the forthcoming week. We handled 251 tons of quartz for the fortnight.—W. Henderson.

No. 7 NORTH EAST QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, August 11:—It is now reported that the timbering of the shaft has been completed, and the fall is big to report. On the 1st instant Ferguson and party cleaned up a crushing of 10 tons for 10 ounces 1 dwt. 3 grains of smelted gold. This party are now crosscutting for the footwall. Penhallurick and party are crushing a parcel of ore of 50 tons, which is looking very well. They will be finished about Tuesday next. The face of their stop is looking splendid. Wherry and party have not done so well. The face is a stone to-day, as about 20 tons of quartz and bared a good quantity for the better. Have hauled about 20 tons of quartz and bared a good quantity of water.

from MCGON EXPEDITION.—The following information has been received from Mr. John Reid, O.E., resident director in Coolgardie:—“South Eastern Prospector” at my late visit to Kalgoorlie I inspected this mine and considered it very encouraging. Union Jack. There is a very nice looking reef showing in this mine, and a considerable amount of gold in places. The following are some of the results of the mine:—The reef is about 10 feet thick and has opened up looking very well. Union Jack. south drive, D. 1000, is about 8 feet thick, making a total of 47 feet. The lode is now 2 feet 3 inches in width and is a very compact body of stone, which has an assay value of 1 ounce of gold per ton of rock.

MINIMUM GOLD MINING ASSOCIATION.—The following report from Messrs. Lewis, Moring, and O. is to hand upon the O'Shea Lease, recently purchased by the above-named firm, and is published for the information of the Australasian Trust (Limited).—Sample taken along the reef at a distance of 19 dwts. 4 grains. Average sample of reef taken on 22nd inst. assays 1 ounce 5 dwts. 17 grains. Fresh water has come in in such quantity that it is now 10 feet level that it is impossible to sink further without pumps. We are therefore purchasing a small portable winding plant for the mine.

RICHMOND CONSOLIDATED (Coolgardie Property).—The manager, under date August 2nd, reports as follows:—At the Richmond shaft the crosscut has been advanced 5 feet, total 37 feet, and we are now getting a yield of water from this drive, so that it looks as if we were approaching the reef. When we reach this I expect we shall get a good flow. During the week a crosscut has been started west, and is now in 3 feet.

winze, and now in 3 feet. The mine manager reports under date, Auckland, Aug. 6, 1901:—“The ventilation in the adit is intended to push on the east crosscut through the reef to tap the winze, and also to push the fresh air country for some distance to south-east, as there is a small lode bearing No. 5 crosscut, from which a fair sample of ore was obtained in March. The lode is situated some 40 feet to south-east of Amaranth, and should be tapped by extending the crosscut that distance. Winze No. 4 drive has now attained depth 40 feet. The last 15 feet sunk has produced ore from which eight fair samples have been taken, giving an average of good stone to the ounce 14 grains, and silver 16 ounces 13 parts. The ore is of the same nature occurring down about 3 feet of quartz on footwall side. The ore is of better quality than that found directly underneath in road adit. It is proposed to continue rising from the adit to main winze in the course of a few days, when the lode has been cleaned up. In this rise I am expecting to meet with very good ore, which will for the present be carefully plied outside mouth of drive and pro-

WESTRALIAN PREMIER.—The mine manager's report to August 8 shows the main shaft was started on July 27, and that the ground was favourably for sinking.

WAIHI CONSOLIDATED.—The directors have received the following report from their manager:—The shaft is fully manned with three shifts of men, and we are making good progress considering that we are sinking through the red which is composed of bands of quartz intermixed with sandstones and flint. The quartz is much like the Silverton ore. The shaft has now attained a depth of 113 feet, making 8 feet for the week. The winding and pumping machinery is working very satisfactorily. I have two men working at the dun kiln

the winding of the shaft had commenced to store water for the boilers in the dry state, the GREAT MINGALL REEF. I—B—g to send you the following as a preliminary report of the above mine.—No. 3 engine shaft. As predicted in my previous report of the 5th inst., I am glad to say that a considerable change for the better has taken place in the 102 feet level south of the east ore level, the course of reef E. I may add that I was in the end of the drive just previous to penning these lines, and am pleased to inform you that the reef, as regards size, is of much greater width than when previously reported on, being now over 200 feet wide. The contents of which is composed of white and greyish white and grey coloured quartz, but the iron pyrites, which is generally considered to be a favourable indication, is not quite so

generally considered to be a favourable indication, is not due to the predominant as one could wish for. Yet the simple broken fragments of the reef showed from panning a fair amount of gold, and I have a doubt about the value of the 5 1/2 ounces of more, or gold to the value of 1000 of stuff. The strata, too, seems to be getting somewhat more compact, which in my opinion is a point which cannot be too highly desired in unsettled slaty formation. Distance driven in the past fortnight 12 1/2 inches. Full drive from east crosscut 115 feet. At this point I would remark that the ground in the 1/2 feet level north of the east crosscut on the course of reef east since last written on has been continually undergoing change. The reef, which was of good average size, declined to six inches in width only, and the formation of the country took on a more massive appearance. The reef, however, is being enlarged by a more local means hard, yet it became, owing to the being enlarged of a more local nature, more massive. The reef is being enlarged by a more local means hard, yet it became, owing to the being enlarged of a more local nature, more massive. The reef is being enlarged by a more local means hard, yet it became, owing to the being enlarged of a more local nature, more massive.

ature, much more troublesome for breaking. However, in the middle part of the past week it became apparent that a change would soon take place, and the privilege had scarcely advanced a foot ere a seam of quartz of about the same width was encountered on the hanging wall side of the reef. At this level, and the extension proceeded it gradually kept digging towards the bottom of the drift, and at last the reef came upon a ledge of the same level, and the reef, at its original size, being now near 2 feet in width. Several samples from the reef have been taken, all of which from panning produced, according to judgment, from 5 dwts. to 7 dwts. of gold to the ton of matter. This drift will be pushed ahead as fast as possible, and with that end in view I purpose at an early date to put on two shifts. This level when further advanced will lay off the reef maintains its present size, and also improves in quality, thus opening a good extent of stopping ground. Distance extended in this direction 100 feet, and the reef is now at the level of the top of the drift. — No. 7, 18th.

feet 6 inches. Total drainage from east crosscut, 119 feet 8 inches.—As I reached here I may state that, since operations were resumed, the 50 foot level mineralized the west crosscut on the course of the reef has been extended to the westward, although the character of the rock was favourable to the production of the mineral being sought for, yet as the drainage increased the reef became so much squeezed as to be of no worth. Therefore, feeling that the whole of the extension (74 feet) from the crosscut produced nothing of worth, nor laid out for anything whatever for stopping, I considered it advisable to close operations in that direction.—No. 1 shift. The ground in the 51 foot level north of the west crosscut continues to be of the most promising nature for bracking, therefore the level is advancing somewhat rapidly. In the early part of the past week the reef became much disordered and split, with the exception of a small patch of stone (kidney shaped) in the upper part of the reef, the rest of the reef was broken up into small pieces, whatever

In this exception the roof was against the hanging wall there was no vein matter visible, but in the last foot or two of the driving the reef was again met and it was present the reef in the forebreast looks very promising, and is now from 12 inches to 1 foot in width, the matrix of which comprises a weakly crystalline, slightly coloured with oxide of iron, also spotted throughout with small quantities of pyrites. A sample taken from the reef yielded by panning only a trace of gold, and I estimate would give from an assay about 6 dwts. or gold to the ton of rock. Notwithstanding the quality of the structure, and the low value, at the same time it would be a matter for congratulation if the reef could only maintain a fair size (say 3 feet) for a considerable distance. It is not probable that the reef could be opened up for stopping purposes. Dimensions of the reef in the past two weeks, 18 feet 6 inches. Total movement of the reef from west crosscut 91 feet 4 inches.—No. 1 shaft.

[illegible]

much ground as they otherwise would have done. The shaft is now down to the past fortnight 8 feet 2 inches, total depth 34 feet 5 inches. No. 2 shaft. This shaft is to the depth of 93 feet, owing to its being raised on the incline was very much out of order. However, the repairs effected are only of a very temporary character. It is intended to have started the engine at 50 ft. 5 in. from the top, but a small extension (11 feet) at the bottom has been made in the direction towards the reef. I commenced operations by continuing the same crosscut. The strata here is much harder than anything we have yet seen on the property. Distance driven last week 5 feet 6 inch. Total drive 16 feet 8 inches.—Erection of battery. The work in connection with the battery, owing to the want of the materials required, &c., is not of a very progressive nature.—All other work on the mine is being carried on as before.—(Signed) Thomas Mitchell.

Witness my hand and Seal Broad River, August 1st 1871

GOLDEN ARROW.—The manager reports, under date Brockton, Mass., as follows:—There are five head of stampers in position; the remainder of the crew has been ordered to work at the mill. The line in Paris were missing, and I sent the engineer, Mr. Watson, down the line to find them. You will see by the enclosed wires that these parts have been found and are now on the way to the mine. As soon as the machinery is received there will be very little delay in placing same in working order. So far

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NEWS FROM WEST AUSTRALIA.

CUTTINGS FROM THE LOCAL PRESS.

(From the West Australian Mining Journal.)

MR. H. PIERSENE, mining agent, of Southern Cross, reports:—"There is a very great scarcity of skilled miners in the district. The want is badly felt, as in consequence most of the mines have now been worked short-handed, whilst others have had to apply for protection. The mines around Southern Cross are all looking exceedingly well, and there is no doubt this field will have a very prosperous future. I have just now received information that the Eureka and Golden Crown leases have been sold to an English company. The Eureka is situated about half a mile from the town, to the west of the Central Extended, and is a very good property. Some of the finest specimens of gold ever obtained in the district have been taken from this mine, and the prospectors have stuck to it manfully, and deserve their good luck. The Golden Crown is about half a mile south of the Eureka and west of Fraser's Gold Mine. This is also a very promising property indeed. At the Rising Sun driving is still being pushed on with, and from the appearance of the country being passed through the reef must now be close at hand. The Golden Pig North is showing good gold in the drive, and a nice chute of gold has been passed through. It is running across the reef and dipping into it. The lode is over 12 feet in width. At the Golden Pig North Extended also some very good stone is being raised. The Tarcoola and Tarcoola North are both looking splendid, and only require machinery to bring them to the front. The Havilah Mine, Hope's Hill, the parallel reef, newly opened up, is looking well, good gold being visible in nearly all the stone. The lode is 8 feet in width at the 40 feet level. This property is proving itself to the satisfaction of the owners."

The Mount Lyell has had a most successful smelting, and the following are the returns:—From June 25 to July 30 inclusive a total quantity of 2588 tons of ore has been treated by the one furnace, the average assay value of the ore before treatment being—Copper, 6 per cent.; silver, 6½ ounces per ton; gold, 3½ dwts. per ton. The product obtained from the treatment of the above ore was 224 tons of "converter matte," containing copper 114 tons, silver 9373 ounces, gold 320 ounces; and also 129 tons of "first matte" (which has yet to be brought up to "converter matte") containing copper 28 tons, silver 1489 ounces, gold 77 ounces. The gross value of the above products, at present London quotations, is £9975. Summarised, these figures stand as follows:—Value of products obtained by treating 2588 tons of ore in one furnace, £9975, equal to £3 17s. 1d. per ton of ore; cost of treatment, shipment, and realisation of above quantity, £4140 16s., equal to £1 12s. per ton of ore, leaving £5834 4s., equal to £2 5s. 1d., representing an estimated profit of 45s. 1d. per ton on this class of ore.

An old Kimberley hand has recently visited the Boggy Camp diamond fields, near Inverell; here the diamonds are found in wash-dust which lies in between the granite and basaltic formations. He says the comparison with Kimberley is favourable to Boggy Camp, and that the return per load at Kimberley is not so good as at Boggy Camp. Messrs. Day and Aitken's claim has been sold to an English syndicate for £15,000.

Some splendid specimens of dollying stone were brought into Coolgardie from Watson's lease, which adjoins Wymann's. The reef here is 2 feet to 2 feet 6 inches thick. It is generally declared that these specimens surpass anything yet discovered. They have been on exhibition during the week at the office of Mr. W. Kingmill, the local mining engineer. The stone is literally held together with gold.

The rich shoot lately struck in the United Gold Reefs, at Coolgardie, has been traced at a depth of 160 feet on to the boundary of the Clyde, and proves to be 2 feet wide.

A big formation of highly-mineralised ore has been found at the Flagstaff, and is likely to lead to the erection of chlorination works in the district.

(From the Gold Fields Courier.)

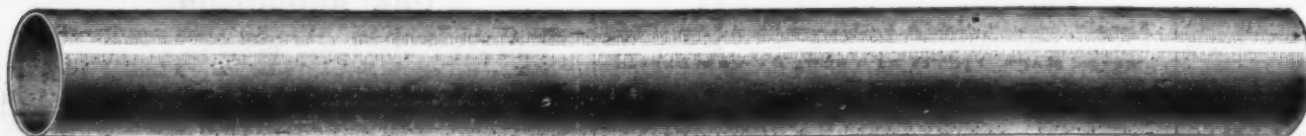
Some very good stone was taken last week from the 90 feet level at the Energetic Mine, about a mile from Coolgardie, to the south, and is to be seen at Mr. E. J. Gregory's office. The stone shows coarse and fine gold freely in the solid. There are three parallel reefs on the property, all of which have been to some extent developed. The main shaft on the most westerly one, which runs close to the western boundary of the property, is down 90 feet. The reef is there 7 feet wide, and the latest assay of the stone taken from it was 6 ounces to the ton. Another shaft is down on the same reef about 100 yards farther north to a depth of about 30 feet, and there the reef is 4 feet wide; and a third shaft is down close to the northern boundary of the claim to a depth of 40 feet, and the reef is 2½ feet wide. It runs on into the next claim, the Energetic Extended, which belongs to the same owners. About the centre of the property, running parallel with the first reef, is a second, on which there is an underlie shaft down 60 feet; 52 tons from this shaft were crushed recently at Bayley's South for a yield of 1½ ounce to the ton. The reef is 18 inches wide. There is, again, a third parallel reef further to the east, on which a shaft is down 40 feet. The reef is 2½ feet wide, and assays 2 ounces. The two latter reefs, like the first, all run into the Energetic Extended. Their bearing is about north and south, and as they underlie to the east the claim must cover an immense quantity of stone. The Dead Finish North, a 5 acre claim, which touches the Energetic Extended on the south-east corner, also belongs to the property, and through it there is a reef with a north-easterly and south-westerly strike, which must traverse a large portion both of the Energetic and Energetic Extended claims. A supply of water is expected to be got at 120 feet. It has been got in a neighbouring claim—the Austral—at 90 feet.

THE INDUSTRIES OF HAVRE.—The recent establishment of new metallurgical works at Havre has had the effect of making the district quite an important industrial centre. A works has just been acquired in that town for the installation of rolling plant for the manufacture of merchant bars and girders. The new concern has secured a contract from one establishment alone for the delivery of 400,000 tons of girders and channel iron over a period of six years.

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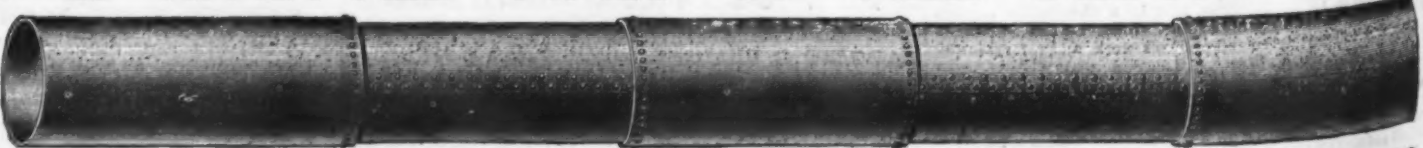
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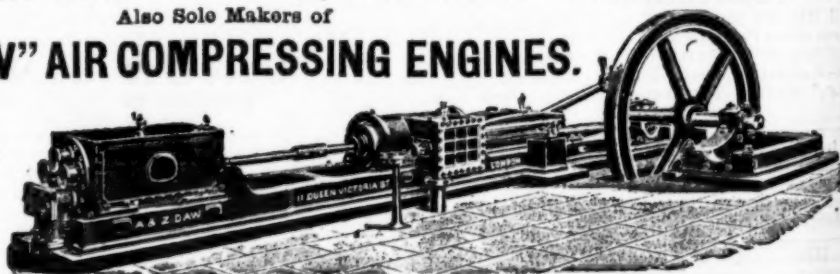
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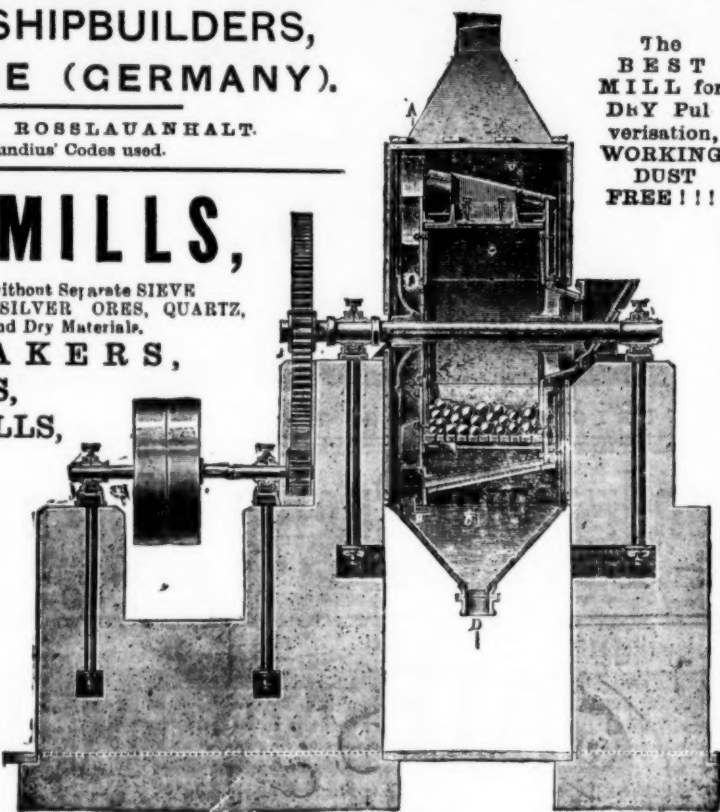
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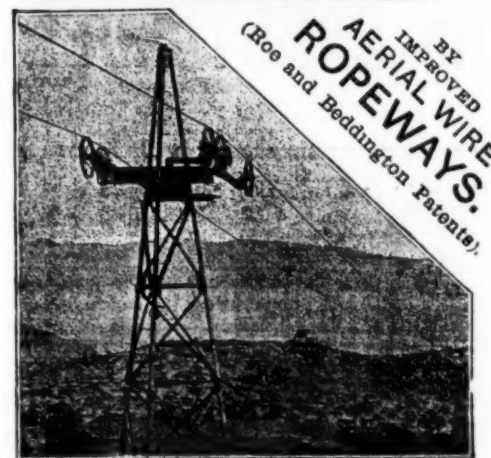
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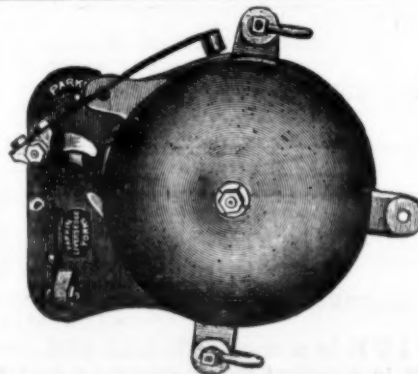
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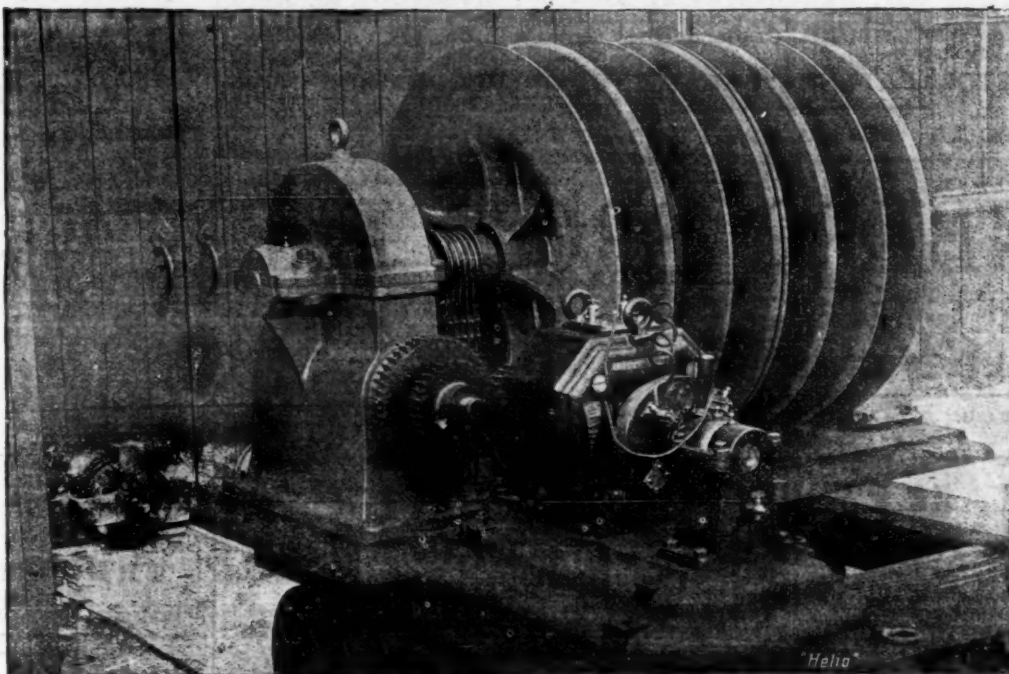
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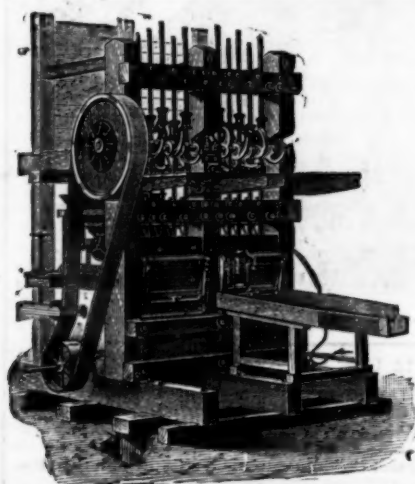


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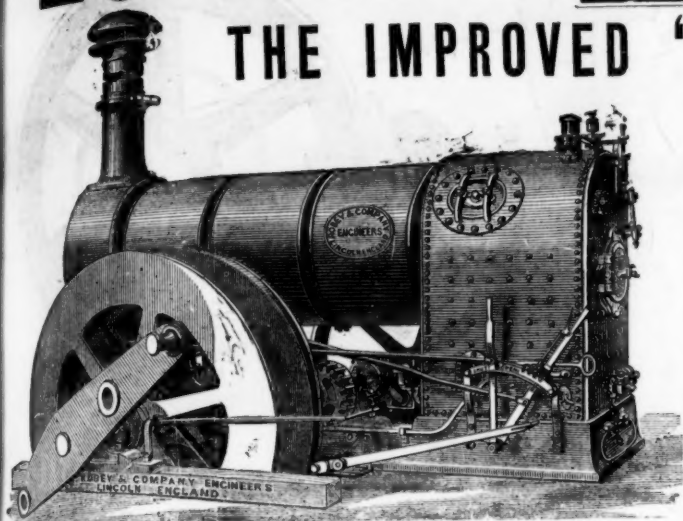
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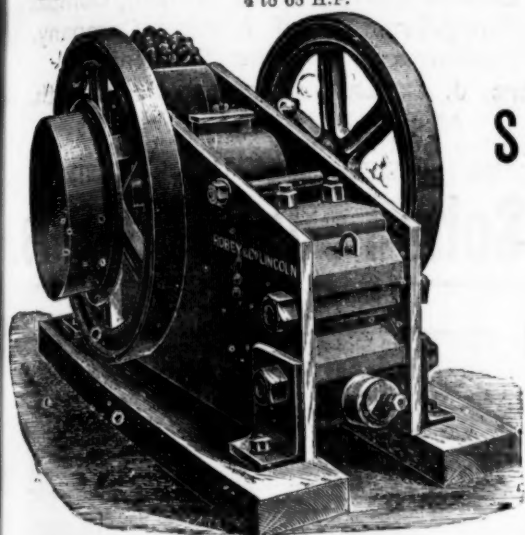


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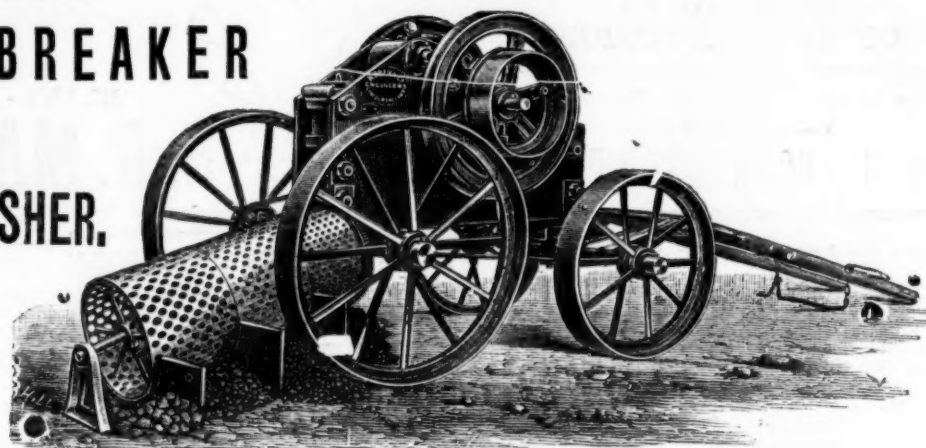
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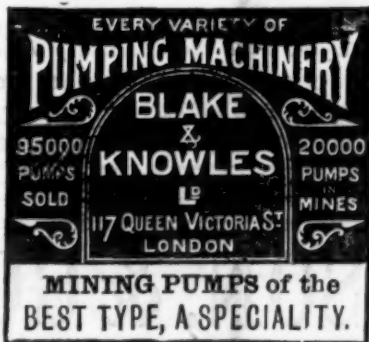
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